RC279
.R969
1960

RUSSIA (1923- U.S.S.R.) GLAVNAIA INSPEK-
TSIIA LECHEBNO-PROFILAKTICHESKOI POMOSHCHI.

Symposium of instructions on the organization of oncological service, prevention, diagnosis and treatment of cancer and precancerous diseases.

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SYMPOSIUM OF INSTRUCTIONS

ON THE ORGANIZATION OF ONCOLOGICAL SERVICE, PREVENTION, DIAGNOSIS AND TREATMENT OF CANCER AND PRECANCEROUS DISEASES

State Publishing House
for Medical Literature
MEDGIZ -- 1956 -- Moscow

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Translated from the Russian by the U.S. Joint Publications
Research Service, Washington, D.C.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, National Institutes of Health
Division of Research Grants, Russian Scientific Translation Program
Bethesda 14, Maryland

Ag 27.9
.R969
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Main Inspection of the Therapeutic-Prophylactic Service

MINISTRY OF HEALTH USSR

S Y M P O S I U M O F I N S T R U C T I O N S

on the Organization of Oncological Service, Prevention, Diagnosis and Treatment of Cancer and Precancerous Diseases

MEDGIZ -- 1956 -- Moscow

The SYMPOSIUM consists of 12 categorical Instructions elaborated by the Institute of Oncology, Academy of Medical Sciences USSR [address: Kamenny Ostrov, 2-ia Berezovaia Alleia, 3, Leningrad, SSSR (Director: A. I. Serebrov, Corres. Member of the AMS)], the State Institute of Oncology im. P. A. Gertsen, Ministry of Health, RSFSR [address: 40 Begovaia ul., d. 7, Moskva, SSSR], the State Institute of Roentgenology and Radiology, Ministry of Health, RSFSR [address: Solianka 7, Moskva, SSSR], and the Inspection of Specialized Medicine [A. Studnitsin, Chief Inspector], Ministry of Health, USSR [address: Ministerstvo Zdravookhranenie SSSR, Solianka 14, Moskva, SSSR].

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NOTE: This monograph, SYMPOSIUM OF INSTRUCTIONS on the Organization of Oncological Service, Prevention, Diagnosis and Treatment of Cancer and Precancerous Diseases, is published by the Division of Research Grants, National Institutes of Health, Public Health Service, as a part of its Russian Scientific Translation Program designed to acquaint medical scientists with research activities and progress within the USSR.

Ministry of Health USSR

SYMPOSIUM OF INSTRUCTIONS

on the Organization of Oncological Service, Prevention, Diagnosis and Treatment of Cancer and Precancerous Diseases

The Instructions were elaborated by the following institutes:

1. Institute of Oncology, AMS USSR
2. State Institute of Oncology im. P. A. Gertsen, Ministry of Health RSFSR
3. State Institute of Roentgenology and Radiology, Ministry of Health RSFSR
4. Inspection of Specialized Medicine, Ministry of Health USSR

State Publishing House of Medical Literature

Medgiz -- 1956 -- Moscow

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Approved by N. Khot'ko,
Acting Chief of the Main
Inspection of the Thera-
peutic-Prophylactic
Service of the Ministry
of Health USSR, 4/2/1956

INSTRUCTIONS
on Forms of Raising the Oncological Qualifications of the Physicians of Therapeutic-Prophylactic Institutions, Feldshers and Midwives, at the Bases of Oncological Institutes, Clinics, Oncological Dispensaries and Hospitals

The systematic raising of the oncological qualifications of general practitioners is the most important measure for ensuring early diagnoses of cancer.

Advanced oncological training of physicians of therapeutic-prophylactic institutions should be carried out at the bases of oncological institutes, clinics, oncological dispensaries, and oblast and city hospitals by the following system:

a) assigning duty posts for periods of two weeks to two months;

b) organizing general oncological and thematic seminars in programs reckoned on three-six work days;

c) before general practitioners receive specialized training in internal medicine, surgery, gynecology and roentgenology in clinics of medical institutes and oblast hospitals, they should undergo a two-week period of special training in oncology at oncological dispensaries.

In organizing oncological seminars it is necessary to consider the following:

a) to attract as lecturers and instructors physicians and assistants from medical colleges, who are well acquainted with thematic problems of oncology;

b) to attract the chief specialists of health departments (a chief surgeon, radiologist, gynecologist, and internist) to take part at seminars;

c) the plan for practical studies and the schedule for lectures should be organized earlier and approved by the local health department;

d) responsibility for the organization and conducting of seminars should rest on the chief physician of the oncological dispensary or the chief physician of the oblast (regional) hospital (the latter if the seminar is held at the hospital);

e) the seminars should be conducted according to a special program (see annotation) reckoned on two-three-six work days with six hours of classes per day;

Annotation: physicians attending seminars are released from their official duties during the course of study.

f) in planning the seminars, it is necessary to allow sufficient time for practical training including visiting oncological hospitals and clinics, examining ambulatory patients from the oncological dispensary at the clinic, and thematic discussions of patients;

g) demonstrations of the typical and most frequently performed oncological operations (subtotal and total resection of the stomach, radical mastectomy, electrosurgical operations, radical excision of the submaxillary glands, inguinal glands, and uterine surgery) should be organized for surgeons and gynecologists who are qualified to perform operations without supervision;

h) the oncological seminars should include primarily physicians lacking oncological and surgical training. The program for physicians who have acquired their own practical experience and who possess theoretical knowledge in the field of oncology should be planned according to the level of their knowledge.

Great importance is attached to the conducting of seminars with physicians who have been selected to perform prophylactic examinations;

i) the most suitable months for conducting seminars on oncology should be considered November, December, January, February, March, and April;

j) the arriving physicians must be provided living quarters.

The present instructions are supplemented by programs of seminars planned for three days (internists, surgeons, gynecologists, rural physicians, feldshers, midwives and chief physicians), for six days (internists, surgeons, gynecologists, stomatologists and rural physicians), and two-day seminars for physicians conducting prophylactic examinations.

A. Studnitsin
Chief Inspector of Specialized Medicine

Program of 6-Day Seminar for Internists

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the origin of cancer	Lecture
			Inspection of oncological institution (building, apparatus, organizational and methods-formulating department)	Practical training
2nd			Outpatient reception	Working in groups
			Methods of examining oncological patient	Practical training
3rd			Cancer of esophagus and stomach (diagnosis and treatment)	Lecture
			Visit to oncological hospital and discussion of patients	Practical training
			Cancer of large intestine and rectum (diagnosis and treatment)	Lecture
			X-ray in the diagnosis of cancer and precancerous state of gastrointestinal tract	Analysis of roentgenograms
4th			Outpatient reception	Practical training
			Cancer of lung (diagnosis and treatment)	Lecture and analysis of roentgenograms
			Familiarization with endoscope	Practical training

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
5th			Mammary carcinoma (diagnosis and treatment)	Lecture
			Systemic diseases (myelosis, lymphogranulomatosis, lymphadenosis)	Lecture, demonstration of patients
6th			Status of oncological service in the republic, kray and oblast, and tasks of medical internists in the campaign against cancer. Documentary report. Importance of prophylactic examination	Lecture with documentary demonstration
			Substance and tasks of anticancer propaganda	Lecture
			Final discussion with students. Questions and answers	

Program of 6-Day Seminar for Surgeons

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the etiology and pathogenesis of cancer	Lecture
			Inspection of oncological institution (building, apparatus, etc.)	Practical training

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Principles of early diagnosis and treatment of cancer. Importance of prophylactic examination	Lecture
2nd			Methods of examining oncological patients	Practical training
			Visit to oncological hospital, discussion of patients	Practical training
3rd			Observing surgical operations. Outpatient reception	Working in groups
			Diagnosis and treatment of cancer and precancerous conditions of stomach	Lecture, demonstration of patients
4th			Rectoscopy, gastroscopy	Practical training
			Diagnosis and treatment of cancer and precancerous condition of mammary gland	Lecture
			Diagnosis and principles of treatment of cancer of esophagus	Lecture, analysis of roentgenograms
5th			Observing surgical operations. Outpatient reception	Working in groups
			Diagnosis and treatment of cancer of lung. Precancerous diseases of lung	Lecture, analysis of roentgenograms

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
6th			Principles of radiation therapy in oncology	Lecture, demonstration of patients
			Diagnosis and principles of treatment of cancer and precancerous disease of skin	Lecture, demonstration of patients
			Organization of anticancer campaign in USSR (oblasts and rayons). Documentary report	Lecture

Program of 6-Day Seminar for Gynecologists

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the origin of cancer	Lecture
			Familiarization with the apparatus, radium and work of the organizational and methods-formulating department	Practical training
			Early diagnosis and principles of combined treatment of cancer of female genitalia	Lecture
2nd			Oncological outpatient reception. Observing surgical operations	Working in groups

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Precancerous diseases of female genitalia (diagnosis and treatment)	Lecture
3rd			Outpatient reception in polyclinic	Group work
			Diagnosis, methods and treatment of cancer of uterine cervix	Lecture
4th			Visit to hospital, observing surgical dressings and participating in treatment of patients with radioactive preparations (observing preparation of radioactive substances and their loading)	Practical training
			Diagnosis and treatment of tumors of uterine body	Lecture
5th			Outpatient reception. Observation of surgical operations	Group work
			Diagnosis and treatment of ovarian tumors	Lecture
6th			Diagnosis and treatment of cancer of vagina and vulva. Dispensary care of patients with precancerous diseases and malignant tumors of female genitalia.	Lecture

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Role of gynecologist in anticancer campaign. Importance of prophylactic examinations	

Program of 6-Day Seminar for Stomatologists

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the etiology and pathogenesis of cancer	Lecture
			Precancerous diseases of the vermilian border of the lower lip and oral cavity	Lecture, demonstration of patients
			Diagnosis and treatment of cancer of lower lip and skin	Lecture
2nd			Thematic discussion of patients with cancer of lower lip and oral cavity. Thematic discussion of patients with precancerous diseases of tongue	Practical training
			Principles of early diagnosis of malignant tumors	Lecture
3rd			Diagnosis and principles of treatment of cancer of tongue and oral cavity; demonstration of patients and wax mannikins	Lecture

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Biopsies in oral cavity: methods and technique of operation of ambulatory patients; errors and dangers	Lecture and practical training
			Diagnosis and principles of treatment of tumors of upper jaw	Lecture
4th			Visit to oncological dispensary	Practical training
			Role of stomatologist in anticancer campaign (with demonstration of report and documentation). Methods of radiotherapy of cancer of skin, lower lip and oral cavity	Lecture
5th			Cancer of oral cavity -- from data of oncological dispensary. Mass prophylactic examinations of complex type with participation of stomatologists. Oncological trend in stomatology	Lecture
6th			Tactical and diagnostic errors of stomatologists in oncological practice. Methods of anticancer propaganda.	Lecture
			Final discussion, questions, answers	

Program of 3-Day Seminar for Polyclinical Internists

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the origin of cancer	Lecture
			Tour of oncological dispensary	Practical training
			Principles of early diagnosis of cancer. Importance of prophylactic examinations	Lecture
2nd			Dispensary procedure in polyclinic	Practical training
			Diagnosis and treatment of cancer of bronchus	Lecture, demonstration of patients
			Early diagnosis of cancer of gastrointestinal tract	Lecture, demonstration of patients and roentgenograms
3rd			Visit to inpatient department of oncological dispensary	Practical training
			Diagnosis and treatment of systemic diseases	Lecture, demonstration of patients and roentgenograms
			Organization of anticancer campaign in the republic (city, oblast, rayon) and tasks of medical internists	Lecture

Program of 3-Day Seminar for Surgeons

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the etiology and pathogenesis of cancer	Lecture
			Familiarization with the apparatus, radiomanipulation department, and tour of hospital	Practical training
			Basic principles of diagnosis and treatment of cancer	Lecture
2nd			Outpatient reception	Group work
			Diagnosis and treatment of cancer and precancerous condition of stomach. Diagnosis and treatment of cancer and precancerous disease of mammary gland	Lecture
3rd			Observation of surgical operations; diagnosis of cancer of bronchus	Lecture, analysis of roentgenograms
			Principles of dispensary care of patients with precancerous diseases; role of surgeons in anticancer campaign. Importance of prophylactic examinations	Lecture

Program for 3-Day Seminar for Gynecologists

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the origin of cancer	Lecture
			Tour of oncological institutions and visit to gynecological department of hospital	Practical training
			Basic principles of diagnosis and treatment of cancer and precancerous diseases of female genitalia	Lecture
2nd			Outpatient reception	Practical training
			Work in hospital (observing surgical dressings, loading of radium in the preparation of colpostats, etc.)	Group work
			Diagnosis and principles of treatment of cancer and precancerous conditions of uterine cervix, uterine body and ovaries	Lecture
3rd			Outpatient service, work in inpatient department	Group work
			Dispensary treatment of patients with precancerous and cancerous diseases of female genitalia.	Lecture

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Role of gynecologist in anticancer campaign. Importance of prophylactic examinations	

Program of 3-Day Seminar for Otorhinolaryngologists at Republic and Kray (Oblast) Oncological Dispensary

Seminars on oncology for otorhinolaryngologists are conducted at oncological institutions or at the ear, nose and throat divisions of oblast and republic hospitals in which patients with malignant tumors of the "LOR" organs are treated. (LOR = ear, nose and throat)

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the origin of cancer	Lecture
			Methods of examination and diagnosis of cancer and precancerous diseases of the LOR organs	Lecture, demonstration of patients
2nd			Outpatient service in the polyclinic	Practical training
			Diagnosis and principles of treatment of cancer of the larynx	Lecture, demonstration of patients
			Diagnosis and principles of treatment of cancer of upper jaw and nasal cavity	Lecture, demonstration of patients
3rd			Diagnosis and principles of treatment of cancer of the nasopharynx, tonsils, and inferior aspect of pharynx	Lecture, demonstration of patients

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Diagnosis and treatment of cancer and precancerous diseases of oral cavity	Lecture, demonstration of patients
			Role of otorhinolaryngologist in anticancer campaign	Lecture

Program of 3-Day Seminar for Chief Physicians and Their Deputies

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Organization and status of oncological service in republic (oblast, city, rayon)	Lecture
			Role and tasks of physicians of therapeutic institutions in organization of anticancer campaign	Lecture
			Current views on origin of cancer	Lecture
2nd			Outpatient care of oncosurgical and oncogynecological patients	Practical training
			General principles of diagnosis and treatment of cancer	Lecture, demonstration of patients
3rd			Tour of hospital and X-ray department of oncological dispensary, demonstration of radioactive preparations, observation of treatment of patients with radium, etc.	Practical training

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			Thesis, method and organization of anti-cancer propaganda. Organization of prophylaxis of cancer (documentary demonstration). Importance of preventive examinations	Lecture

Program of 2-Day Seminar for Physicians Who Perform Prophylactic Examinations

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Role and importance of prophylactic examinations in the fight against cancer. Thesis and organization of anticancer propaganda with conduction of prophylactic examinations. General principles and early diagnosis of cancer	Lecture
2nd			Diagnosis of cancer and precancerous diseases of gastro-intestinal tract (stomach, esophagus, rectum)	Lecture, demonstration of patients
			Diagnosis of precancerous diseases and cancer of female genitalia. Diagnosis of precancerous diseases and cancer of mammary glands. Diagnosis of cancer and precancerous condition of skin and oral cavity	Lecture

Program of 6-Day Seminar (Interrupted Courses) for Rural Physicians in Oncological Institutions, Oblast Hospital and Oncological Dispensaries

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of the origin of cancer	Lecture
			Inspection of oncological institutions and apparatus; visit to inpatient section	Practical training
			Basic principles of diagnosis and treatment of cancer and precancerous diseases	Lecture
2nd			Outpatient reception; discussion of inpatients	Group work
			Diagnosis and treatment of cancer and precancerous diseases of stomach. Diagnosis and treatment of cancer and precancerous diseases of mammary gland	Lecture
3rd			Outpatient reception; observation of surgical operation	Group work
			Diagnosis of cancer of bronchus. Precancerous diseases of lung. General principles of dispensary care of patients with precancerous diseases and malignant tumors	Lecture

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
4th			Outpatient reception; discussion of in-patients	Group work
			Cancer and precancerous diseases of mouth, tongue, oral cavity	Lecture, demonstration of patients
			General principles of radiotherapy of cancer	Lecture
5th			Observation of surgical operations; outpatient reception	Group work
			Diagnosis of cancer and precancerous diseases of uterine cervix, vulva, uterine body, ovaries. Importance and method of preventive examinations	Lecture
6th			Diagnosis and treatment of cancer and precancerous conditions of skin. Method of anticancer propaganda. Role of physicians of rural medical units in fight against cancer	Lecture

Program of 3-Day Seminar in Rayon Hospital for Physicians of Rural Medical Units

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of origin of cancer. General principles of diagnosis and treatment of cancer and precancerous conditions. Importance and method of preventive examinations	Lecture
2nd			Examination of patients with cancer of stomach, mammary gland, oral cavity, uterine cervix, etc.	Practical training, according to judgment of seminar directors
			Analysis of roentgenograms. Examination of patients following radical therapy	Practical training
			Method of examining oncological patients	Lecture, demonstration of patients
			Diagnosis of cancer and precancerous condition of stomach. Principles of radical surgery in treatment of cancer of stomach	Lecture
3rd			Diagnosis and treatment of cancer of bronchus. Precancerous diseases of lungs. Diagnosis and treatment of cancer and precancerous diseases of female genitalia.	Lecture

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			General principles of dispensary care of patients with cancer and precancerous diseases and methods of anticancer propaganda	

Program of Oncological Seminars (Interrupted Courses) at Rayon Hospital for Feldshers and Midwives of Feldsher and Feldsher-Midwife Points

Seminars on problems of oncology (interrupted courses) are conducted in rayon hospitals by personnel of the oblast (regional) oncological dispensary and the oblast (regional) hospital in collaboration with rayon specialists for the purpose of raising the qualifications of feldshers and midwives of rural feldsher and feldsher-midwife points.

It is expedient to conduct these seminars during the period in which there is no field work (November-April), summoning feldshers and midwives to the rayon center for three days with interruption from work, or, if this is impossible, once a week in the course of three weeks.

Along with theoretical study, it is necessary to demonstrate the methods of early diagnosis of cancer, the methods of research, acquiring anamnesis, etc. For this purpose, the physician responsible for the dispensary care of patients with precancerous diseases and malignant tumors in the rayons prepares a group of patients for classroom demonstration.

Program of 3-Day Seminar (Interrupted Courses) for Feldshers and Midwives of Rural Feldsher and Feldsher-Midwife Points

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
1st			Modern concepts of benign and malignant tumors and cause of their development. Methods of examining oncological patients and general principles of treatment	Lecture

Day	Time of Class	Surname of Lecturer	Subject	Form of Presentation
			of benign and malignant tumors. Diagnosis and treatment of precancerous diseases	
2nd			Methods of examining gynecological patients	Practical training in dispensary
			Diagnosis of cancer of female genitalia. Diagnosis of cancer of skin, oral cavity, mouth	Lecture
3rd			Methods of examining oncological patients	Practical training in dispensary
			Diagnosis of cancer of gastrointestinal tract and mammary gland. Principles of dispensary care of oncological patients and organization of preventive examinations	Lecture

Approved by P. Shupik,
Deputy Minister of
Health USSR, 20/11/1956

STANDARD STATUS OF ONCOLOGICAL DISPENSARY

I. General Function

1. The oncological dispensary is a therapeutic-prophylactic institution subordinated under the republic, kray, oblast, city or rayon. Its principal task is to carry out measures for the prevention of cancer, secure early diagnosis, dispensary observation and expert treatment of patients with cancer and precancerous diseases, and carry out the organizational and methodical instructions of all the other therapeutic-prophylactic institutions on the territory of its activity.

2. The oncological dispensary (republic, kray, oblast) is under the authority of the corresponding ministry of health, the kray, oblast health department, and is opened and closed with the approval of the Ministry of Health USSR; while the city or rayon dispensary is under the jurisdiction of the city or rayon health department, and is opened and closed with the approval of the ministry of health of the corresponding union republic.

3. The contingent of the population serving in the oncological dispensary determines the organ of the health service that will have jurisdiction over the dispensary.

4. The oncological dispensary is located in an adaptable or specially constructed building or in a separate part of a building.

5. The dispensary is an independent institution with legal rights, and has the right to carry out its tasks, obtain its equipment, conclude contracts, institute legal proceedings and respond in courts of law and organs of arbitration.

6. The dispensary has a round seal and stamp with full designation.

II. Tasks

7. To fulfill its function it is incumbent on the oncological dispensary to:

(a) assist the corresponding health organs in carrying out organizational-methodical work in oncology on the spot and in working out a system of measures and a complex plan of anticancer measures in the republic, oblast, kray, city and rayon;

(b) exercise organizational-methodical leadership and control over the activity of oncological dispensaries in hospitals and oncological departments of other therapeutic-prophylactic institutions that conduct work in oncology;

(c) control the early diagnosis of malignant neoplasms, early hospitalization and expert treatment (surgical, radiation and combined therapy) of patients with cancer and precancerous diseases in conformity with the modern scientific achievements of oncology; introduce into general-therapeutic and oncological institutions the most effective methods of diagnosis and treatment of cancer;

(d) direct prophylactic work -- organize, control and participate directly in preventive oncological examinations and analyze the obtained results; work together with the directors of health organs and therapeutic institutions to draw general practitioners into preventive work.

(e) improve methods of early diagnosis of cancer and increase the vigilance of general practitioners by organizing 10-day campaigns, seminars and short courses in oncology at the oblast (republic, kray) center; teach physicians at their places of work, hold periodic sessions, participate in local scientific societies, congresses of physicians and conferences on clinical, organizational-methodical and other problems in the fight against malignant neoplasms; hold oblast, kray, republic, city and rayon conferences and sessions of oncologists and other specialists on the prevention, early diagnosis and treatment of cancer and precancerous diseases, and carry out the most effective methods of dispensary care;

(f) conduct the compilation, systematic study and analysis of statistical data on the illness and death rates of malignant tumors; direct and control the registration of patients with malignant neoplasms and precancerous diseases by oncological and general therapeutic-prophylactic institutions;

(g) study the remote results and effective treatment of oncological patients, and work out measures to improve the treatment of cancer;

(h) control work in the study of the causes of the neglect of cancer in hospitals and polyclinics, and work out concrete measures to improve methods of early diagnosis and hospitalization of oncological patients; participate at medical conferences on the causes of late

diagnosis of cancer; send written notices to rural physicians, feldshers and midwives who have committed errors in the diagnosis of cancer, with a detailed analysis of these mistakes;

(i) organize and conduct wide-scale sanitary-educational work in oncology among the general population with the help of workers of dispensaries and other oncological institutions, the general medical network and the houses of sanitary education;

(j) conduct scientific-research in oncology under the direction of the corresponding oncological institute;

(k) submit established records, data concerning one's own work and statistical data to corresponding health departments and ministries of health.

III. Structure, Staffs, Financing, Direction and Accounts

8. The oncological dispensary includes:

(a) a polyclinic with specialized departments -- surgical, gynecological, etc. -- a dressing room and operating room for biopsies;

(b) a hospital with a therapeutic-diagnostic section, operating room and dressing room;

(c) therapeutic and diagnostic departments or rooms: roentgenodiagnostic, roentgentherapeutic, radiotherapeutic, gammatherapeutic; clinical-diagnostic and pathohistological laboratories; pharmacy;

(d) temporary room for patients arriving for consultation, outpatient treatment, and for patients anticipating hospitalization;

(e) organizational-methodical and registration offices;

(f) administrative unit;

9. The number and designation of specialized sections and departments, the beds in the hospital unit and temporary room, and the staff of the dispensary are maintained in an established form according to the official standards and classification of the dispensaries published by the Minister of Health USSR.

10. The dispensary has equipment and other property in accordance with lists and standards of equipment established by the Ministry of Health USSR.

11. The oncological dispensary is financed by budget allocations and may have special funds in accordance with operative legislation on this matter.

12. The dispensary is headed by a chief physician who is appointed and released from duty by the corresponding health department. On the chief physician's recommendation, this department also appoints and relieves his deputies and chief (senior) accountant.

13. The chief physician runs the dispensary on the basis of one-man management; he hires and discharges personnel with adherence to operative legislation, disposes matters concerning the dispensary's property and credit, ensures the fulfillment of the dispensary's function, represents the dispensary in all questions of its activity, assumes responsibility for its correct and expedient work, for the maintenance of financial and staff discipline.

14. At established periods, the chief physician of the oncological dispensary submits to the health organ to which he is subordinated the plans of operation and a record of the dispensary's work.

15. The function of the dispensary is revised by the health organs and other authorized state organs.

N. Khot'ko
Acting Chief of the Main Inspection
of the Therapeutic-Prophylactic Service

Approved by P. Shupik,
Deputy Minister of
Health USSR, 22/11/1956

INSTRUCTIONS
on the Work of the Oncological Dispensary Section of the Hospital

1. Oncological dispensary sections are organized in hospitals in which beds for oncological patients are provided according to the structure of arrangement of the hospital beds.

2. The oncological dispensary section of a hospital is the consultation center of the anticancer campaign in the area of its function and provides modern methods of diagnosis and treatment of oncological patients.

3. The area of the dispensary's service is the territory covered by the hospital in which it is located. If necessary, this area may be widened by order of the oblast (regional) or city health department.

4. The chief physician of the hospital is obliged to provide the oncological dispensary section (ODS) with adequate facilities, i.e., location, equipment, personnel, etc., for the performance of broad organizational-methodical and therapeutic-prophylactic work, as well as outpatient and visiting nurse service.

5. The ODS operates according to a plan approved by the chief physician of the hospital, in agreement with the corresponding oncological dispensary.

6. The ODS submits records of its organizational-methodical, therapeutic-prophylactic and sanitary-educational work to the chief physician of the hospital, and keeps copies of these records in the dispensary.

7. The ODS is charged with:

(a) the organization and participation of the general public in systematic preventive oncological examinations, with a view to discovering malignant neoplasms and precancerous diseases; preventive work at industrial enterprises with occupational hazards;

(b) the early discovery of cancer and precancerous diseases, for which purpose corresponding preventive and diagnostic work is organized and conducted by the head of the oncological section in collaboration

with health points and district resident physicians of therapeutic-prophylactic institutions in the area of service;

(c) carrying out measures for raising the qualifications in the area of oncology and increasing the oncological vigilance of physicians in the general therapeutic network, introducing into their work new methods of diagnosis and treatment of cancer, as well as organizational-methodical conditions for oncology;

(d) systematic dispensary care of patients with cancer and precancerous diseases;

(e) the treatment of patients with cancer by surgical, radiation and combined therapeutic methods;

(f) registering and compiling records of patients with cancer and precancerous diseases;

(g) consultative reception and treatment of outpatients; organization of treatment in the oncological section and consultation for patients in other sections of the hospital and in the home;

(h) study the effectiveness of therapy carried out on oncological patients and the record of the remote results of treatment;

(i) visiting and vigilant observation of oncological patients in the home in collaboration with resident physicians in the district;

(j) study the causes of neglect of cancer, and active participation at conferences convened for analysis of these cases;

(k) study of the morbidity of cancer among the inhabitants of the area of the dispensary's service on the basis of data from hospitals, polyclinics and pathologoanatomic sections;

(l) conducting sanitary education and sanitary-educational work on cancer among the inhabitants.

8. To fulfill the functions listed under item 7, the chief physician of the hospital provides the oncological section with:

(a) equipped and suitably arranged offices for outpatient reception, an operating room for minor operations and biopsies, an endoscopic room, a dressing room, an accounting and statistical office;

(b) wards with beds -- surgical, gynecological, otolaryngological, roentgenoradiological and conservative therapy of patients in the fourth stage;

(c) a radium therapy room (if the given institution possesses radium);

(d) the possibility of using the therapeutic-diagnostic rooms (roentgendiagnostic, roentgentherapeutic), laboratories (clinical, pathohistological), pharmacy and administrative services of the hospital.

9. The number of beds in the ODS is determined by the local health organs in accordance with the plans of the ministries of health of the union republics, and cannot be decreased without the permission of the minister of health of the union republic.

10. The post of head of the ODS is given to a physician with experience in hospital work in oncology (a surgeon, gynecologist or roentgentherapist) and is filled through competition.

11. The head of the ODS is subordinated to the chief physician of the hospital, and is directed by the methodical directives of the corresponding oncological dispensary.

12. The head of the ODS and the other workers of this section work under the corresponding conditions and instructions that determine the activity of the heads and corresponding workers of other sections of the hospital. The duties of the heads of the sections include, in particular, the instruction of all the employees of the section who use radioactive substances in the handling of these substances, and control over the adherence to the established rules of work with these substances.

N. Khot'ko
Acting Chief of the Main Inspection
of the Therapeutic-Prophylactic Service

Approved by P. Shupik,
Deputy Minister of
Health USSR, 24/11/1956

INSTRUCTIONS
on the Work of the Oncological Department

1. The oncological department (OD) is established within the structure of the polyclinic of a hospital or a polyclinic that functions independently in cities and workers' settlements. There is one OD per 15-20 medical districts, discounting other oncological institutions functioning in the area of the OD's activity.

2. The OD is created for the purpose of carrying out local organizational and preventive measures against cancer, registration, early diagnosis, dispensary care and treatment of patients with cancer and precancerous diseases.

The opening and closing of the OD is decided by the regional or oblast health departments or by the ministry of health of the autonomous republic.

3. The area of activity of the OD is the area served by the polyclinic. In a number of cases the area of the OD's service is widened, and is then determined by the corresponding health organ.

4. The OD functions according to a plan approved by the chief physician of the hospital (polyclinic), in accordance with the proper oncological dispensary.

5. The functions of the OD include:

(a) consultative reception of patients;

(b) diagnostic and special therapeutic service to oncological patients, including hospitalization;

(c) registration and accounting of all oncological patients in its area of service;

(d) systematic observation of all oncological patients discovered -- primarily patients who have undergone surgical or radiotherapy.

(e) organization of medical service in the home for all patients who require it, excepting patients of the 4th clinical group, who are visited in the home by physicians and nurses of the general medical network;

(f) the study of the incidence of oncological diseases in its area of activity, the effectiveness of treatment and the remote results according to the given hospitals, polyclinics, health points, dining halls, pathologoanatomic discoveries, etc.;

(g) carrying out wide-scale prophylaxis against oncological diseases by means of organizing and participating in preventive physical examinations, controlling the fulfillment of the plan for preventive examinations and the quality of their performance by general practitioners;

(h) conducting sanitary-educational work in oncology with the participation of the medical community and the houses of sanitary education;

(i) methodical work with general practitioners: consultative analysis of patients, systematic study of diagnostic errors and the reasons for neglect of cancer;

(j) submitting reports of established current data to the chief physician of the therapeutic-prophylactic institution in which the OD is located and to the corresponding oncological dispensary.

6. To fulfill the functions presented above under item 5, the chief physician of the hospital (polyclinic) provides the OD with:

(a) separate rooms for consultative reception of patients by oncological surgeons and gynecologists;

(b) a room in which to keep card indexes, case histories and other records of oncological patients;

(c) roentgendiagnostic, endoscopic and laboratory methods of research, an operating room for biopsies in outpatients, and a dressing room;

(d) consultations with specialists;

(e) hospitalization of oncological patients when indicated therapy requires it.

7. The OD maintains contact with the general-therapeutic institutions located in its area of service through physicians in these institutions who are assigned to oncological work.

8. The head of the OD is either a physician who has had special training in oncology or a surgeon or gynecologist who is familiar with oncology.

9. The head of the OD is subordinated in therapeutic and administrative matters to the chief physician of the polyclinic or dispensary, while in organizational-methodical matters he is directed by the instructions of the corresponding oncological dispensary.

N. Khot'ko
Acting Chief of the Main Inspection
of the Therapeutic-Prophylactic Service

Approved by F. Zakharov,
Chief of the Main Inspection
of the Therapeutic-Prophylactic
Service of the Ministry of
Health USSR, 12/3/1956

INSTRUCTIONS
on Conducting Preventive Examinations Among the General Population for the Early Discovery Cancer and Precancerous Diseases

1. The success of an organized campaign against cancer at the present level depends on the prevention, early diagnosis and timely treatment of malignant tumors and precancerous diseases.

2. The most important measures directed toward the active resolution of this responsible task are:

(a) the systematic conduction of thorough preventive examinations of women and men over 30 and 35 years of age, respectively;

(b) the organization of a general polyclinical service for the public, in which every medical examination of a patient would include a preventive examination to discover the most frequent localizations of cancer and precancerous diseases.

The principal shortcoming of the present method of prophylactic examination is the established practice of conducting specific examinations to discover specific diseases, e.g., tuberculosis, malignant neoplasms, silicosis, brucellosis, malaria, trachoma, rheumatism, hypertension, skin-venereal and obstetrical-gynecological diseases, etc.

This practice inevitably leads to the frequent and unnecessary summons of the same individual to therapeutic-prophylactic institutions for examination for different diseases. The program for conducting preventive examinations cannot develop as planned when the examinations are for the most part haphazard and performed in series. Moreover, the conducting of separate examinations decreases public interest in them, traumatizes the examinee and interferes with work in industry. It is therefore necessary to introduce single, combined medical-prophylactic examinations to be conducted in therapeutic-prophylactic institutions among those same population groups.

These examinations should be conducted on a mass basis at least once a year, at an established time previously made known to the public, to the administration of industrial enterprises and to agricultural organizations.

3. Combined prophylactic examinations of laborers and office workers must be conducted at the factories, MTS and state collective farms that have their own therapeutic units by the personnel of the units or by physicians brought in from other hospitals and polyclinics (through the health organ).

4. At factories and offices that do not possess their own therapeutic units, prophylactic examinations are conducted according to schedule by physicians of the city rayon hospitals and polyclinics. These same institutions conduct examinations of the non-working population (retired persons, housewives, etc.).

5. In making the examinations, primary attention should be given to the organs that are most often affected by malignant tumors, i.e., the skin, mouth, tongue and oral mucosa, esophagus, stomach, rectum, lungs, mammary glands and uterine cervix.

6. Prophylactic examinations of rural inhabitants on state farms and MTS should be conducted at the dispensary, in accordance with notice No. 21, issued on 12/4/54 by the Ministry of Health USSR.

7. The organization of examinations for the purpose of discovering early forms of cancer and precancerous conditions is relegated to the chief physicians of therapeutic-prophylactic institutions; the oncological institutions are responsible for the fulfillment of the plan and quality of the examinations. The plan for conducting combined prophylactic examinations is formed by the health organs in collaboration with special units (oncological dispensaries, sections and hospital departments), and indicates the following:

(a) factories and offices in which exams must be conducted;

(b) the number of persons subject to examination;

(c) calendar periods of examinations;

(d) the therapeutic installations and organizations responsible for conducting examinations and performing consultative services;

(e) necessary measures for the preparation of X-ray rooms and laboratories for the conducting of prophylactic examinations;

(f) routine for determining the results of examination and the organization of treatment of patients in whom malignancy has been found.

8. The combined prophylactic examinations are conducted by physicians of different specialties (surgeons, internists, gynecologists, dermatologists, etc.), who are best qualified and trained for this purpose.

9. Mass examinations in factories and offices should be preceded by extensive sanitary-educational work organized by oncological institutions, with the participation of houses of sanitary education: reports, discussions over the radio, and articles in the local factory newspaper elucidating the purpose and the problems of the measures taken.

10. Before conducting each examination specified by plan, oncological dispensaries organize seminars, according to an approved program, for physicians who conduct prophylactic examinations.

The physicians must become familiarized with the method of examination, documentation, the routine for referring patients with cancer or precancerous conditions for dispensary care and treatment.

To control the quality of the examinations, oncological dispensaries should receive lists of the patients examined and those requiring treatment in corresponding health organs, and submit their own observations to the establishments in which the examinations were conducted.

11. On completing the examinations, the specialists of the city hospital, medical-sanitary unit or polyclinic (dispensary) work out their findings, compile a report of this work and, not later than 10 days following examination, submit the report with a list of the patients requiring treatment to the chief physician of the rayon hospital.

12. Patients with cancer or precancerous diseases are provided dispensary care and specific therapy in city and rayon (oblast) hospitals. In areas where there are city and rayon oncological dispensaries or departments, the registration, dispensary care and therapy of these patients are conducted in the oncological establishments.

13. A deposition on form No. 281 must be written by the diagnosing physician for each patient requiring treatment, and sent within three days to the oncological establishment in the area where the patient lives. The only case in which deposition is not submitted is when the patient has already been diagnosed earlier as having cancer. Item 7 of the deposition specifies a detailed diagnosis: type of tumor (carcinoma, sarcoma, etc.) and localization and clinical group in which the patient should be included.

14. On the basis of the results of the combined prophylactic examinations, the chief physician of the city hospital, medical-sanitary unit or dispensary outlines measures for improving the work conditions of individual groups of workers and establishes control over the fulfillment of all the measures outlined.

15. Records of the number of examinations made and the persons found to require treatment are included in the annual reports of the city hospitals (form No. 1-a) and rural hospitals (form No. 13). The materials of these reports and depositions are used by oncological installations in their operative work; an analysis of the prophylactic examinations conducted must be included in the explanatory notes to the annual report on form No. 10.

16. For purposes of early diagnosis of cancer and precancerous conditions, all physicians in hospitals and polyclinics who examine female patients over 30 years of age and male patients over 35 years of age, who have been admitted because of other diseases, are advised to conduct individual prophylactic examinations.

(a) In conducting mass examinations of the oral cavity for purposes of sanitation or treatment, stomatologists and dentists should pay attention to non-healing ulcers, fissure, abrasions, white and uneven patches (leukoplakia) inside the mouth and on the lips; if treatment is unsuccessful in the course of 7-10 days, the patient is referred to an oncologist.

Examination of the mouth, tongue and oral mucosa should be started by questioning the patient about painful sensations on talking and eating (burning, smarting, pain). In objective examination, particular attention should be directed to the areas in which cancer develops most often, i.e., the vermilion border of the lower lip near the corner of the mouth, the lateral surface of the tongue, the root of the tongue, the mucosa covering the floor of the mouth and cheeks.

(b) Dermatologists, surgeons and internists should pay attention to patients with skin diseases: pigmented elevated spots, persistent eczematous rash, growing warts, non-healing ulcers, fissures, abrasions, nodules, indurated areas on the skin and particularly occupational keratoses should be discovered and subjected to thorough clinical observation in dermatological therapeutic establishments if necessary, with biopsy.

In examining the skin, a detailed examination of the pathological focus should be made under a magnifying glass and, of course, a good light.

(c) Internists, surgeons, gynecologists and other physicians who examine female patients -- particularly those over 30 years of age -- should examine the breasts simultaneously. If there are indurations in the breasts or eczematous formations in the region of the nipples, it is imperative that the patient be referred to an oncologist for consultation.

In examining the mammary gland, attention should be given to alteration of form of one of the breasts, the degree of erectness (with arms held above the head), retraction of the nipple, areolar eczema, and discharge from the nipple. If tumors or indurated areas in the breast are present, particular attention should be given to establishing the signs of their adhesion to the skin, indicated by wrinkling of the skin and umbilication, and the condition of the axillary and subclavian glands -- their increase in size and thickening.

(d) Internists, nutrition experts and specialists in gastrointestinal diseases should pay particular attention to patients with diseases of the esophagus, chronic gastritis and gastric ulcers, particularly when accompanied by hypoacidity or achylia. These patients should be weighed systematically and subjected to roentgenoscopy; if they lose weight and do not respond to conservative therapy they should be referred to an oncologist for consultation.

In examining the esophagus it is necessary first of all to ascertain whether the patient has any difficulty or discomfort on swallowing dry food. Symptoms of dysphagia (marked retention of alimentary bolus in the esophagus, even if not constant) indicate X-ray examination without delay.

The diagnosis of cancer of the stomach may be substantially facilitated by establishing a clinical syndrome of "lesser symptoms," worked out by the State Oncological Institute im. P. A. Gertsen:

(1) change in how the patient feels, manifested by unmotivated general weakness, reduced work capacity, rapid fatigability;

(2) unmotivated, steady decrease in appetite, sometimes complete loss of appetite to the point of aversion to food;

(3) symptoms of gastric distress: loss of a physiological sense of satisfaction after eating, especially if this is accompanied by local gastric symptoms, i.e., feeling that the stomach is distended, flatulence, feeling of fullness, occasional pain in the epigastrium, nausea and vomiting from time to time;

(4) progressive loss of weight without cause, accompanied by pallor and other symptoms of developing anemia, which are unexplained by other non-gastric disorders;

(5) mental depression, lack of energy, loss of interest in the surroundings and in work, apathy, alienation.

An objective gastric examination entails palpation of the stomach with the patient in different positions (horizontal, lateral and standing), laboratory tests (gastric juice, stool specimen for occult blood) and, finally, X-ray examination.

(e) Internists, phthisiologists and roentgenologists who conduct roentgenoscopy and fluorography should pay attention to patients with prolonged, especially dry, exerting cough, hemoptysis, and periodic rise in temperature of obscure etiology, resembling chronic bronchites and pneumonias which could be considered precancerous, as well as early forms of cancer of the lungs, which are generally latent. These patients should undergo repeated roentgenoscopy, roentgenography, and be examined by an oncologist.

In objective examination, it is necessary to pay attention to restriction of respiratory mobility of one (diseased) side of the thoracic cavity, loss of resonance and weakened respiration. All patients with the above symptoms should undergo thorough roentgenological examination without delay.

(f) Internists and surgeons should pay attention to patients with chronic cholitis, proctitis, hemorrhoids or any rectal disorder. If any of these disorders exist, a digital examination should be made. Patients who do not respond to treatment, and those about whom there is doubt should be referred to an oncologist for consultation.

In examining the rectum it is necessary to ascertain by questioning the patient the existence of the following disorders: constipation alternating with diarrhea, a feeling of mild, dull pain in the area of the perineum or sacrum on defecation, the presence of blood or puriform mucus in the stool. If any of these symptoms exist, a digital examination of the rectum should be made with the patient lying on his side with knees drawn up toward the stomach, or in knee-elbow position. Discovery of a pathological growth by means of digital examination indicated obligatory rectoromanoscopy, with biopsy in doubtful cases.

(g) For the examination of female patients, in addition to the bimanual method, gynecologists should use a speculum, digital examination through the rectum and examination of the inguinal glands.

Attention should be given to leukokeratoses, erosion, mucous ectropion, lacerations and scars on the uterine cervix, particularly in women over 30 years of age. Biopsy is indicated in all cases in which cancer is suspected. Caustics should be avoided in treating the above conditions, and patients who do not respond to treatment should be referred to an oncologist.

(h) Otorhinolaryngologists should pay attention to any disorders of the larynx, particularly to frequently recurring hoarseness, thickening and polyps of the vocal folds against a background of chronic catarrh.

In treating the above conditions, prolonged use of caustics should be avoided, and patients who do not respond to treatment should be referred to an oncologist-laryngologist.

To check the individual prophylactic oncological examinations of patients by specialists, the following form is stamped on the outpatient chart:

Dates of Individual Prophylactic Oncological Examinations and Diagnosis Established

	195	195	195	195
Skin				
Lip				
Tongue and oral mucosa				
Esophagus				
Stomach				
Rectum				
Lungs				
Mammary gland				
Uterus				

After making a prophylactic oncological examination of individual organs, the specialist includes his findings in the corresponding column and a concise diagnosis of cancer or precancerous disease is established. The detailed notations on deviations from the norm are entered as usual in the outpatient chart.

Following polyclinical examination, a "card for dispensary observation" (record form No. 30) is filled in on patients with possible cancer and those with precancerous diseases. This card, with the outpatient chart, is the control document for checking the dates of examination, dates of correction of diagnosis, and the dates of hospitalization and treatment of the patient.

A "notification" (record form No. 281) must be filled out on each person found to have cancer, and submitted within three days to the oncological hospital or sent to the nearest oncological dispensary or department.

17. The results of mass prophylactic oncological examinations indicate the average rate of development of cancer in healthy individuals to be 0.12%, and its rate of development is three to four times greater in persons with prolonged diseases of individual organs (chronic atrophic gastritis with hypoacidity of the gastric juice or with complete achylia, chronic callous gastric ulcer, polyps, polyposes, disease of the uterine cervix, the nodal form of mastopathy, fibroadenoma of the adult mammary gland, etc.).

All patients with prolonged precancerous diseases who are listed in the corresponding instructions are placed under dispensary care. A "card for dispensary observation" (record form No. 30) is filled out for every patient requiring systematic observation. Each of these patients must undergo thorough examination by specialists at least twice a year. The physician responsible for the dispensary observation of these patients checks their files periodically, summons them for their next examination and prescribes treatment.

18. Every male patient over 35 years of age and every female patient over 30 years of age, who are admitted to any hospital department, must undergo thorough oncological examination. If the patient is found to have a disease suggestive of cancer, he may not be discharged until the diagnosis of malignancy has been disproved. If a definite diagnosis cannot be established at the hospital, the patient must be transferred to the oncological dispensary and undergo a thorough special examination for possible cancer.

If a diagnosis of cancer is established, the patient should be given specific therapy at the hospital without delay. If it is impossible to treat the patient at the hospital in which the diagnosis has been established, the patient must be sent to another hospital where he may receive complete treatment.

On completion of the examination, the notation "has undergone oncological examination" should be entered in the title page of the case history; the same notation is made on the "card for discharge from hospital."

19. A notification (record form No. 281) is filled out on every patient in whom cancer has been established, and sent within a period of three days to the nearest oncological installation (oncological dispensary or outpatient department); after the patient has recovered at the given therapeutic establishment, his discharge is written on form No. 27 oncol. (onko).

20. Combined prophylactic-medical examinations should be given to all adults who systematically receive letters pertaining to dispensary care of the urban population, No. 16-6/58 from 28/1/54.

A. Studnitsin
Chief Inspector
of Specialized Medicine

Approved by N. Khot'ko,
Acting Chief of Main Inspection
of Therapeutic-Prophylactic
Service, Ministry of Health
USSR, 16/11/1956

INSTRUCTIONS
Regarding Outpatient Service for Patients With Precancerous Diseases

1. All patients with precancerous diseases that have been discovered at therapeutic installations and in prophylactic examinations should be placed under dispensary observation. A control card on form No. 30, containing notations concerning the exams conducted, treatment and further observation, is made out for each patient.

In evaluating diseases as precancerous, the indicated diseases should be classified according to the organs.

2. Patients with the following precancerous diseases should be provided dispensary service at oncological establishments: gastric polyposis, callous gastric ulcer, focal hyperplastic rigid gastritis, mammary fibroadenomatosis, polyposis of the large intestine and rectum, dyskeratosis and papillomatosis of the lower lip, Bowen's disease, xeroderma pigmentosum, and cornu cutaneum.

Following radical therapy, this group of patients should remain under dispensary observation for a period of one year; they should be examined every three months after recovery, and retained on patient status until complete cure has been established.

3. Dispensary care of female patients with precancerous diseases of the genitalia should be administered at women's consultation centers. If the consultation center is not equipped with an electrocoagulating apparatus, the patients must be sent to an oncological dispensary for radical therapy, with subsequent outpatient service in the area of residence until complete recovery has been established.

4. Therapeutic consultation rooms provide dispensary service for patients with precancerous diseases of the lungs, i.e., chronic, prolonged and recurrent pneumonias and bronchiectasis, and for patients with anacid atrophic gastritis, gastric ulcers, and chronic ulcerative colitis. A control card (form No. 30) is filled out for each patient. These patients may be removed from dispensary observation only after complete recovery has been established by a thorough examination.

5. Stomatological consultation rooms should provide outpatient service for patients with prolonged precancerous diseases of the oral cavity, leukoplakia, leukokeratosis and papillomatosis. Oncological consultation is obligatory.

6. Patients with precancerous diseases of the nasopharynx and larynx are provided outpatient service by ear, nose and throat consultation rooms. Consultation with an oncologist-laryngologist at an oncological dispensary is obligatory.

7. If a given populated point has no oncological dispensary or department, patients with precancerous diseases of the mammary glands, skin, lower lip, stomach, large intestine and rectum are placed under dispensary care at the surgical department of the polyclinic.

A. Studnitsin
Chief Inspector
of Specialized Medicine

Approved by N. Khot'ko,
Acting Chief of Main Inspection
of Therapeutic-Prophylactic
Service, Ministry of Health
USSR, 29/11/1956

INSTRUCTIONS
on Registration and Compilation of Reports on Malignant Neoplasms

1. All patients with malignant neoplasms are registered in oncological installations (oncological dispensaries, outpatient departments, consultation centers) and by all physicians of the general medical network (where there are no oncological installations).

2. The principal operative medical document filled out on patients with malignant neoplasms is the medical card for outpatients (record form No. 25).

Polyclinical sections of hospitals, non-unified urban and rural polyclinics, dispensaries and women's consultation centers -- if they have no special oncological sections or consultation rooms -- record the fact that the patient has cancer on the regular medical card (form No. 25). For convenience in organizing treatment and observation, the dispensary oncological departments and consultation rooms may fill out a separate medical card (record form No. 25) for the patient with cancer, and keep it in a special card-index section or consultation room.

After the patient has been discharged from the hospital, an epicrisis of the disease -- from the case history written at the hospital -- is entered on the medical card /by the attending physician of the hospital if the latter is united with the given institution; if the patient was treated in a hospital that is not united with the given institution, the epicrisis is entered by the attending physician of the dispensary section on the basis of "notes from the case history of the patient with cancer" (record form No. 27 oncol.) obtained from the hospital/.

3. Patients with malignant neoplasms who live in the area served by the given therapeutic installation are placed under dispensary care.

Information regarding oncological patients under dispensary observation is entered in report form No. 10 in the table, "Patients with Malignant Neoplasms." Physicians of general medicine include

such data in the table, "Dispensary Observation," in report form No. 1-a of the city hospital, or in a corresponding table in report form No. 13 of the rural hospital.

The control card of the patient under dispensary observation (record form No. 30) serves to control the carrying out of dispensary care and the regularity of examination in oncological and other therapeutic installations.

4. The control cards guide all installations that provide outpatient service to patients with malignant tumors (oncological dispensaries, departments, consultation rooms, city and rural hospitals, women's consultation centers, etc.). The control cards are arranged in two card-indexes: one for patients with malignant neoplasms; the other for patients with suspected cancer and those with precancerous diseases.

The area of service of an oncological installation may include an entire city, a part of the city, or a city with an assigned rural territory, depending on the presence of other oncological installations.

The area of service for each given installation is determined by the corresponding health department.

The area of service of the oncological dispensary department of a hospital may not coincide entirely with the area of service of the hospital in cases where the neighboring hospitals have no oncological departments.

If the oblast, kray, or republic has only one oncological dispensary, this installation must provide dispensary service to all patients with malignant neoplasms who live on the territory of the oblast, kray, or republic. In this case, a patient may obtain dispensary care in two installations: in the oblast, kray, or republic oncological dispensary and in the rayon installation of general medicine.

The general practitioner taking care of a patient with cancer must see that the patient is referred without delay to the oncological installation for examination and treatment; he should provide his service to the patient and carry out special or symptomatic treatment according to the recommendations of the oncological installation.

The patient's diagnosis and clinical group at the time he is placed under observation, all subsequent changes of diagnosis and clinical classification and the methods of examination and treatment applied are recorded on the control card.

All the cards of patients with precancerous diseases and malignant neoplasms who have been removed from the registry (for reasons of recovery, departure from the area of oncological service, death, etc.) prior to compilation of the annual record are kept separately from the active card-indexes; after the record has been compiled, they are sent to the archive.

5. To introduce a complete record and provide dispensary care for all oncological patients, it is necessary to classify them according to the following clinical groups:

Group I-a -- patients with suspected malignancy;

" I-b -- " " precancerous disease;

" II -- " " malignant tumors, requiring special therapy;

" II-a -- patients with malignant tumors, requiring radical therapy;

" III -- practically healthy (cured of cancer);

" IV -- patients in advanced stage of disease, only symptomatic treatment indicated.

Group I-a includes patients with an unclear clinical picture and possible malignancy. Not to be included in this group are patients referred to the oncological installation with a diagnosis of suspected cancer which has been disproved by the results of examination at that installation. According to the final diagnosis, the patients in group I-a are either removed entirely from the record or reclassified under other groups; either course must be taken not later than 15 days after the patient's initial treatment.

Group I-b includes patients with precancerous conditions.

Group II includes patients with cancer, who require special therapy, and patients with neogenetic malignant tumors and systemic diseases (lymphogranulomatosis, sarcoma of all localizations). This group does not include patients requiring palliative surgical therapy, e.g., gastrostomy in cancer of the esophagus, tracheotomy in inoperable cancer of the larynx, placement of an artificial anus in cancer of the rectum, etc.; these patients are classified under group IV.

Sub-group II-a includes patients requiring radical therapy -- patients in whom the timely application of radical therapy (surgical, radiation, combined) is expected to result in full recovery.

Group III -- practically healthy -- includes patients who have received treatment (surgical, radiation, or combined) without subsequent development of metastases or recurrence of cancer. If metastases do develop, or if there is a recurrence of cancer, these patients are reclassified: to group II if special therapy (surgical or radiation) is possible; to group IV if special therapy is impossible.

Group IV includes patients for whom radical therapy is not indicated. It would be erroneous to include in this group patients with completely curable forms of malignant tumors, who have general and local contraindications for radical surgical or radiotherapy.

Note: A patient -- depending on the extent to which the process has spread and on the therapy administered -- may be changed drom one group to another.

6. All patients for whom a diagnosis of malignancy has been established for the first time in their lives are subject to compulsory registration on record forms No. 281 throughout the USSR; these records must be filled out by all physicians in general and specialized medicine who have discovered malignant neoplasms in such persons. If the diagnosis of cancer has been made by intermediate medical personnel who conduct independent reception of patients, the patient must be referred without delay to a physician who, on confirming the diagnosis, fills out a record form No. 281. The patient's diagnosis is recorded in detail under item 7 of this report, including the type of tumor (carcinoma, sarcoma, etc.), its localization and the clinical group under which the patient should be classified.

The chief physicians of city and rural therapeutic-prophylactic installations send the record forms within three days to the oncological installations (oncological dispensary, department or consultation room) serving the given area. If the city (rayon) has no oncological installation, the notification is sent to the rayon (city) health department.

The chief physicians of oncological installations and rayon health departments see that the forms are submitted by therapeutic installations, use the information in their operative work, conduct investigations into the reasons for late diagnoses of cancer (group IV) and, once a month, not later than the tenth day after the fiscal month, forward all the records to the corresponding oblast, kray, republic (republics without oblast division) and city (cities subordinated to the republic) oncological dispensaries (oncological department of the oblast, kray or republic hospital) or -- if the above dispensaries do not exist -- to the organizational-methods office of the oblast (kray, republic) hospital.

7. The oblast, kray, city and republic oncological dispensaries carefully check the record forms, and those filled out by the oblast dispensary itself, and eliminate duplications. On the basis of these forms, they compile statistical reports twice a year (for the first six months and for the entire year) on "The Incidence of Carcinoma and Other Malignant Neoplasms" on form No. 61-journal.

The reports are submitted to the oblast (kray) health department, which checks their accuracy. The head of the oblast (kray) health department and city health department (cities subordinate to the republic) checks the reports, signs them and forwards them to the ministry of health of the union republic on the periods set by the reports table.

The ministries of health of the union republics that do not have oblast division submit reports to the Ministry of Health USSR at periods set by the reports table. These reports cover the republic as a whole, and contain separate data for the capital of the union republic.

The ministries of health of the union republics that have oblast division submit to the Ministry of Health USSR sectioned reports on the oblasts, krays and autonomous republics, with separate data on the capital of the union republic and the cities subordinate to the republic.

The analysis and study of the incidence of cancer in the 16 republics are conducted by the Institute of Oncology AMS USSR; the statistics on cancer in the individual republics are studied by the oncological and roentgeno-oncological institutes (Moscow, Kiev, Baku, Yerevan) and by the republic oncological dispensaries.

8. On the basis of the card-index of the control cards, the oncological dispensary and the oncological dispensary department compile an annual report on form No. 10, which contains -- in addition to data on the work of oncological installations -- information on the classification of patients according to clinical groups. Separate data is given on the number of registered patients with a diagnosis of cancer for the first time in their lives (according to clinical groups), the number of deaths during the given year, and the number of persons still registered at the end of the fiscal year (according to clinical groups).

Patients who have been registered for more than three years (group III) are included in a separate report on the remote results of treatment.

The oblast, kray and republic oncological dispensaries summarize the data of the reports on form No. 10 submitted by the individual oncological installations and forward their summaries through the corresponding health organs to the ministry of health of the union republic; the information is then sent to the Ministry of Health USSR.

9. In making a report on form No. 10 it is necessary to be guided by the instructions on registrations and reports of the oncological dispensary and dispensary department issued in 1955 by the Medical Statistical Section.

Note: 1. record form No. 281
2. " " No. 30

A. Studnitsin
Chief Inspector
of Specialized Medicine

USSR
Ministry of Health

Public Health Record Form No. 281
Approved by Ministry of
Health USSR, 16/7/1954

Name of therapeutic installation

NOTIFICATION
of patient with first established diagnosis of active tuberculosis, venereal disease, trichophytosis, microsporosis, favus, trachoma, carcinoma or other malignant neoplasms

1. Last name, first name, patronymic .....

2. Sex ..... 3. Age ..... 4. Date of admission .....
year, day, month

5. Patient's address: populated point .....
rayon ..... street ..... house No. ..... apt. No. .....

6. Urban dweller, rural dweller (write in, ...

7. Detailed diagnosis .....

8. Has the diagnosis been confirmed by laboratory tests, X-ray exam, biopsy, endoscopy, demonstration of the presence of Koch's bacillus (tubercle bacillus) in patients with tuberculosis? .....

Signature of physician .....

INSTRUCTIONS

1. A notification form is filled out by the physician on each patient -- both urban and rural -- who has contracted a given disease for the first time.

2. A notification form is written in every therapeutic-prophylactic installation of general as well as specialized medicine.

3. Two diagnoses should not be included, e.g., latent syphilis and visceral syphilis, tuberculosis of the lungs and tuberculosis of knee joint. Only the dominant diagnosis should be indicated.

4. If a patient is found to have two infections, e.g., gonorrhea and fungus infection, two separate forms are filled out.

A notification form is filled out for the following types of diseases:

1. Active tuberculosis of respiratory organs (with demonstration of presence of tubercle bacillus)

2. Tuberculous meningitis

3. Active tuberculosis of bones and joints (with indication of localization)

4. Tuberculosis cutis, including lupus

5. Other forms of active tuberculosis

6. Syphilis, 1st and 2nd stages -- early; II -- recurrent; III -- active

7. Congenital, early, active syphilis

8. All other forms of syphilis

9. Acute and chronic gonorrhea

10. Trichophytosis
11. Microsporosis
12. Favus

} with indication of localization (a) scalp, (b) nails, (c) smooth skin

13. Trachoma, 1st, 2nd, 3rd stages
14. Carcinoma
15. Sarcoma
16. Other malignant tumors

} with indication of localization and clinical group

USSR Ministry of Health

(Name of therapeutic installation)

Registration Form No. 30
Approved by Ministry of Health USSR, 10/3/1956

Last name of physician ..... No. or cipher of medical card (dispensary case history) .....

CONTROL CARD FOR DISPENSARY SERVICE

Dates: registered .....
removed from register .....

Previously registered at .....
from ..... to .....
with diagnosis of .....

.....
(reason for dispensary service, disease)
Worker in installation and enterprise: .....
(for periodic examinee)
Occupational injury .....
Subject to med. exam. ..... times a year

Notation regarding sending of notification form

1. Last name, first name, patronymic .....

2. Sex ..... 3. Date of birth ..... 4. Address .....

5. Place of work (study) and occupation .....

6. Record of visits (outpatient and home)

Appointed visit .....
Reported .....
Appointed visit .....
Reported .....
Appointed visit .....
Reported .....

Write -- nutritional, communal, children's, industrial, sovkhoz, MTS, kolkhoz.

7. Record of changes of diagnosis (results of exam. -- for examinees in order of periodic examinations)

Date	Diagnosis	Group or stage, with tuberculosis- tubercle bacillus+-	Date	Diagnosis	Group or stage, with tuberculosis- tubercle bacillus+-

On removing patient from registry, state reason for removal; in case of death, state cause; died -- at home, in hospital .....

8. Special remarks (methods of exam., methods, periods and results of treatment, notes on hospitalization) .....

9. For patients with chronic infectious diseases: contacts examined ....., new cases discovered, previously undetected (indicate stage or dispensary registration group ....., source of infection discovered and subjected to treatment -- yes, no (underline), diagnosis ..... (write in)

Signature of physician .....

On the first line is written the initial diagnosis, irrespective of the time and place of its determination -- the diagnosis at the time it was recorded at the given installation (including stage of the disease, clinical group, dispensary registration, complications); the diagnosis established for the first time in the patient's life is indicated by a plus (+) sign. On the following lines are written the changes of the stages of disease and group.

Approved by N. Khot'ko,
Acting Chief of Main Inspection
of Therapeutic-Prophylactic
Service, Ministry of
Health USSR, 9/11/1956

INSTRUCTIONS
on the Control and Investigation of Late Diagnoses of Cancer

To raise the qualifications of physicians in the early diagnosis and treatment of cancer and to improve the quality of anticancer propaganda, it is necessary to exercise systematic control, and investigate all cases of advanced cancer in therapeutic installations.

1. Control and investigation covers all patients with advanced forms of cancer (group IV).

2. Responsibility for determining the causes of neglect of malignant tumors lies on the director of the therapeutic installation in which the neglected condition was first established.

3. Every case in which advanced malignancy has been established for the first time is recorded on record form No. 248.

4. A record of each patient with advanced cancer is drawn up in duplicate: one copy is appended to the patient's case history (outpatient card), the other is sent to the oncological dispensary or department in the patient's area of residence.

5. The record contains a chronological record of the patient's treatment in therapeutic installations from the day he first applied for medical aid, the individuals and the therapeutic installations responsible for the delay in establishing an early diagnosis of cancer and initiating therapy, practical suggestions and organizational conclusions.

6. Failure to draw up records of advanced cases must be considered as concealment of cases of late diagnosis of cancer.

7. On receiving the records, the oncological dispensary (oncological department) places the patients on its registry (clinical group IV).

8. The chief physician of the therapeutic installation in which advanced malignancy has been established makes a personal study of the records and documents of the patients concerned and decides which cases should be reviewed, organizes their reviewal at medical conferences with the physicians who had observed or treated the patients earlier and were responsible for the condition of advanced malignancy.

9. The minutes and conclusions of these medical conferences, along with statements of the reasons for the advanced condition of malignancy in each case, are submitted to the health organs. Particular attention is given to the reviews of those cases in which the reason for the advanced condition was negligence on the part of the physicians of the therapeutic network in the methods of examination (digital examination of the rectum, examination of the uterine cervix by means of speculum, X-ray examination of lungs or gastrointestinal tract, etc.).

10. The investigation of neglect in therapeutic installations is controlled by the health organs through the oncological dispensaries with the participation of leading specialists (oncologists, internists, surgeons, gynecologists, otolaryngologists, roentgenologists).

11. After studying the material on the cases of negligence, the health organs, with the help of the oncological dispensaries, work out concrete measures for improving the public oncological service.

12. Through the oncological dispensaries, the directors of local health organs report (in a text report on form No. 10) on the investigation of the reasons for advanced cases of malignancy and on the practical measures taken to improve oncological service in the city, rayon, oblast and kray.

13. Appended to the present instructions is the record form that is filled out on all patients with late diagnoses of cancer.

A. Studnitsin
Chief Inspector
of Special Medical Service

USSR
Ministry of Health

Public Health Report Form No. 248
Approved by Ministry
of Health USSR

(Name of therapeutic installation)

PROTOCOL

on diagnosis of cancer in advanced stage (clinical group IV)
(made out in duplicate: original copy appended to case history, outpatient card; duplicate sent to oncological dispensary in area of patient's residence)

No. of case history, outpatient card .....

1. Prepared by therapeutic installation .....
(location)

2. Patient's surname ..... first name .....
patronymic ..... age ..... sex .....

3. Diagnosis and stage of disease .....

4. Date of establishment of advanced state of cancer .....

5. Date of manifestation of initial symptoms of disease .....

6. Initial application of patient for medical treatment in connection with the disease. Date ..... Therapeutic installation .....

7. Date of first diagnosis of cancer .....
In which therapeutic installation .....

Write in chronological order the steps of patient's application to physicians and therapeutic installations in connection with given disease. Following must be recorded for each therapeutic installation:

Name of therapeutic installation	Date of patient's visit	Methods of examination and results	Diagnosis established	Therapy administered

REASONS FOR ADVANCED STATE OF DISEASE
(underline principal reason)

1. Incomplete examination of patient .....

2. Error in diagnosis .....

3. (a) clinical .....
   (b) X-ray .....
   (c) pathohistological .....

3. Prolonged examination of patient .....

4. Latent course of disease .....

5. Late application of patient for medical aid .....

Supplementary comments .....

Data on review of present case at medical conference:
(a) Name of installation where conference was held .....
(b) Date of conference .....
(c) No. of physicians attending .....
(d) organizational conclusions .....

Signature of physician writing report .....
Signature of chief physician .....
Date of writing of protocol .....

Approved by N. Khot'ko,
Acting Chief of Main Inspection
of Therapeutic-Prophylactic
Service, Ministry of
Health USSR, 16/2/1956

INSTRUCTIONS
on Recording Remote Results of Treatment of Cancer for Purposes of Investigating the Effectiveness of the Methods of Therapy

1. The principal criterion of the effectiveness of the treatment administered to patients with cancer is the length of time the patients live following radical therapy.

2. The purpose of recording the remote results of treatment of patients with cancer who have undergone radical therapy in general and specialized hospitals and who are practically cured (transferred to group III) is to investigate the effectiveness of the therapeutic methods used in oncology and to conduct prophylactic measures and early therapy for the prevention of possible recurrences and metastases by means of dispensary observation of persons who have recovered from cancer.

3. A record of the remote results of therapy is made out by all oncological dispensaries and departments, primarily with respect to the most common forms of cancer, i.e., of the stomach, uterine cervix, skin, mammary gland, lower lip, larynx, lungs, esophagus, rectum.

For purposes of precision and agreement of data on the effectiveness of the treatment used, it is necessary to calculate the percent of remote results of treatment according to the stage of disease -- not only with respect to the patients under observation, but also with respect to all patients under treatment and those who have been discharged.

4. A study of the effectiveness of individual methods of treatment according to the given record of remote results is drawn up by oncological and roentgeno-oncological institutes, and republic, oblast, kray and city dispensaries.

5. The study of remote results is conducted on the basis of entries on the patient's individual card (record form No. 25), containing both data from the case history (record form No. 27) and entries pertaining to the dynamics of subsequent treatment and observation.

6. Investigation of the remote results of treatment should provide an evaluation of the increase in the number of patients in group III according to the data at the end of the fiscal year, worked out according to localizations (in record form No. 10), which is accomplished by working out card-indexes of control cards and individual cards of outpatients (form No. 25).

7. For purposes of completeness of materials for the investigation of remote results and for the evaluation of the effectiveness of therapy administered, hospital physicians write out a discharge report (record form No. 27 onco.) for each patient with malignant tumor who has undergone treatment at the given hospital. The discharge form contains passport data, date of the patient's admission to the hospital, the final diagnosis and stage of disease, and a comprehensive report of the pathomorphological study and findings. It should represent an exact record of all the treatment administered in chronological order, indicating the degree of its radicalness, the dosage of radiation if this method of therapy was applied, and data concerning other methods employed. It is particularly important to enter in the discharge slip the recommendations of the therapeutic installation regarding further treatment, and a final diagnosis with indication of the stage of disease and clinical group. A record form No. 27 onco. is sent to the oncological dispensary at the patient's area of residence.

8. The discharge slip serves not only for investigation of remote results of treatment but also for completeness of the record and dispensary care of patients with cancer. The oncological installation that receives the discharge slip (record form No. 27 onco.) makes out a control card for the patient; if a control card has already been made out, the alteration of the clinical group is entered in it.

9. The practically cured patients who are registered under group III undergo periodic examination and care by the oncologist every three months during the first year after recovery, once every six months during the second and third years, and then at least once a year.

10. If the patient is unable to come to the oncological dispensary or department for examination (because of distance, serious physical condition, etc.) the examinations at the stipulated periods are conducted at the patient's place of residence by personnel from the oncological installation or nearest general therapeutic installation. In this case, the oncological dispensary or department responsible for the follow-up of the patient send an extract of his history of malignancy (record form No. 27 onco.) to the therapeutic installation which is instructed to conduct the examination. The therapeutic installation must return this form to the oncological installation with conclusions on the examinee's state of health.

11. After the first follow-up examination, the oncological installation in which the examination was made determines the place and order of subsequent examinations according to the patient's condition; however, the schedule is arranged so that the results of examinations at the end of each year are concentrated at the oncological dispensary (oncological department) in which the remote results of treatment are recorded.

12. It is very important that the outpatient card contain detailed entries on any changes in the patient's condition, particularly the exact periods at which recurrence of disease and metastases occur. Corresponding data should be included in brief form in the control card.

13. When notification of the patient's death is received by the oncological dispensary or department in which the remote results are recorded, the control card is removed from the card-index; when the annual report is prepared at the end of the year, the card is sent to the archive of the given institution.

The history of the patient's malignancy (form No. 27 onco.) is attached to the card.

A. Studnitsin
Chief Inspector
of Specialized Medicine

USSR
Ministry of Health

Public Health Record Form No. 27
Approved by Ministry
of Health USSR

Name and address of installation issuing discharge form

EXTRACT
of history of patient's malignancy (filled out by all hospitals)

Name and address of installation to which extract is sent

1. Patient's last name, first name, patronymic .....

2. Age ..... Sex .....

3. Place of residence .....

4. Date of admission to hospital .....

5. Final diagnosis and stage of disease .....

6. Findings of histological examination .....

7. Treatment .....
(only surgical, date and type of operation)

.....
(only radiation (method, sequence of administration, dose, separately for roentgens and radium))
(a) radium .....
(b) roentgens .....
(c) radium and roentgens .....

combined: (date and type of operation, method of radiation, sequence of administration, dose -- separately for roentgens and radium)
(a) surgical and radium .....
(b) surgical and roentgens .....
(c) surgical, radium and roentgens .....

8. Other forms of treatment .....

9. Treatment prescribed after discharge from hospital .....

10. Date of discharge from hospital or death .....
(indicate date and underline corresponding data)

..... 195 year .....

Physician's signature .....

Approved by Presidium
of Scientific Council,
Ministry of Health
USSR, 24/4/1956

CLASSIFICATION
of Precancerous Diseases and Instructive-Methodical Recommendations for Their Treatment and Prevention

According to the experience of clinical and experimental oncology, nearly all malignant tumors develop against a background of perceptible, preparatory changes in the tissues, known as precancerous. We should therefore consider precarcinoma, presarcoma, and analogous processes which are forerunners of other forms of malignant tumors. All these precancerous processes originate from diverse forms of proliferation arising against a background of disturbance of the trophic system of the tissues. Malignant tumors sometimes develop from benign tumors.

Knowledge of the precancerous processes is necessary for the rational prophylaxis of cancer.

The processes that have been studied most extensively and have the greatest practical importance are those that precede the development of malignant tumors, i.e., the precancerous processes.

These processes include prolonged (chronic) diseases or conditions of the tissues, serving as a background for more or less frequent development of cancer.

The above-mentioned diseases include those which nearly always develop into cancer, e.g., Bowen's disease, xeroderma pigmentosum, hereditary polyposis coli ("obligatory" precancer), in addition to a number of pathological processes against the background of which -- with less frequency -- malignant tumors may develop.

Attributed to these "background" processes are hyperkeratotic gastric ulcer, certain forms of gastritis, cystosarcoma phylloides, ectropion with erosion of the mucosa of the uterine cervix, etc. The above-mentioned processes may develop into malignant tumors, but not necessarily. These processes may be considered precancerous ("facultative" precancer) when accompanied by the following symptoms: focal (often multiple) atypical proliferation of tissue elements, established by morphological examination or suspected after X-ray examination of the internal organs; prolonged course of the process; persistence of the above or other symptoms; ineffectiveness of conservative methods of treatment; recurrence of disease following clinical cure.

Note: (1) Focal proliferation may result from either hyperplastic processes or atrophic tissue changes.

(2) In establishing that a particular pathological process is possibly or definitely precancerous, consideration should be given to the patient's age; at different ages the same kinds of processes vary in significance with respect to cancer; the possibility of the development of cancer increases in relation to the increase in the patient's age.

The pathological processes that lead to cancer are curable. The cure of the above-mentioned diseases depends upon the preventive measures with respect to the development of cancer.

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
		SKIN	
1. Xeroderma pigmentosum	Symptoms occurring soon after birth on the open areas of the body -- primarily on the face -- include reddening of the skin, pigmentation, warts, histologically indicative of acanthomas from which cancer develops	Limited and individual warts -- excision or removal by electric needle; multiple growths -- brief short-focus roentgentherapy	Protection of open areas of body against solar rays
2. Bowen's disease (dyskeratotic process)	Manifested in the form of very diversified spots with polycyclic or irregular outlines or oval formations located on the skin in various areas. A large part of these formations	Brief or short-focus roentgentherapy or surgical removal of dyskeratotic lesions	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	is usually covered with scales, crusts that are difficult to remove, occurs on the surface of the skin and appears thicker than the adjacent area of the skin		
3. Paget's disease	Eczematous ulceration of surface of skin, subsequently developing into ulcer (rather dark red, moist, crusted surface), does not heal spontaneously and does not respond to anti-eczema therapy	Biopsy; if Paget's cells are present -- extensive excision of diseased area	
4. Cutaneous horn	Manifested in the form of warts with thick corneous base, or in the form of a large, corneous excrescence occurring on the face, scalp, and occasionally on other parts of the body	Brief and short-focus roentgen-therapy. Radical surgical or electrosurgical removal of cutaneous horn	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
5. Non-healing ulcers, fistulas and scars of occupational and non-occupational origin, and those resulting from infectious (tuberculosis, syphilis, osteomyelitis) and skin diseases	Chronic inflammatory processes with pathological regeneration, not responsive to conservative therapy	Surgical therapy	Timely, rational treatment of ulcers, fistulas and scars. Prophylaxis against occupational precancerous diseases
6. Senile and radiation keratoses	Dystrophic changes in the skin, characterized by numerous yellowish-brown macular spots, telangiectases and warty growths covered with thick crusts that are difficult to remove	In case of progressive consolidation of the warty growths in senile keratosis -- brief short-focus roentgentherapy; in radiation keratosis -- surgical removal (exsection or electro-excision)	Prophylaxis against radiation cancer
7. Anomalies of skin development	Pigmented spots and fibroepithelial warts of inherited and acquired nature, more often on areas that have been traumatized and particularly with increase in size or consolidation of the spots	Brief short-focus roentgentherapy or radical surgical removal of the pigmented spots and warts	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
		LOWER LIP	
A. Dyskeratoses 1. Diffuse	Prolonged process of thickening and hardening of red border of lip, dryness and loss of its normal luster, desquamation, fissures or erosions extending along entire red border or significant portion of it	1. In every case -- immediate and complete cessation of use of tobacco 2. Exsection of red border of lip and suturing of the skin to the mucous membrane, or plastic surgery with mucosa of lower lip	For individuals working for long periods of time outdoors -- systematic application of neutral fat (unsalted butter, lanolin). In case of recidivity -- transfer to indoor job
2. Focal (a) productive	Frequent occurrence of excessive keratinization on small area of red border with formation of patches, scabs, or cornua that drop off periodically and form again as the result of epithelial proliferation	1. Roentgentherapy (method and dosage as for cancer) 2. Electrocoagulation of focus and submucous layer 3. Surgical excision (after biopsy): (a) if malignant transformation is not suspected - exsection with underlying layer in transverse direction to red border; (b) if malignant transformation is suspected -- quadrate resection of the lip within the limits of healthy tissue, as in radical surgery	Prophylaxis as against diffuse dyskeratosis

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
(b) destructive	Thinning or defect of the epithelial cover of the red border (limited area) with epithelial proliferation along the border of the focus. Appears in form of ulceration or fistula-like defect of red border		
B. Papillomas (warty growths)	Limited elevation on surface of red border of lip, embedded in the submucosa, with thick, corneous or scabby, nappy surface	Surgical removal	
	ORAL MUCOSA		
A. Leukokeratosis 1. Diffuse	Numerous whitish spots of different size and shape and soft to the touch appearing on considerable area of mucous membrane	Excision of individual patchy areas as soon as they become thick and scabby	Dental hygiene; adjustment of prostheses; oral hygiene; treatment of chronic inflammatory diseases, bland, high-vitamin diet; restriction of tobacco and alcohol

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
2. Focal (a) Leukoplakia	Single whitish or smokey and thick or soft-to-the-touch patchy spots on mucous membrane with smooth or scabby surface	Excision or coagulation of affected areas	Dental hygiene; adjustment of prostheses; oral hygiene; treatment of chronic inflammatory diseases, bland, high-vitamin diet, restriction of tobacco and alcohol
(b) Papillomatosis	Multiple or single soft warty growths covering considerable area of mucous membrane in the form of conic or cylindrical soft outgrowths on oral mucosa	Excision of individual papillomas; gradual electrocoagulation of individual areas with papillomas; short-focus roentgentherapy in certain cases	
B. Destructive forms Ulcers and fissures	Flat, soft, superficial ulcers and fissures of different forms, nonhealing, particularly after elimination of their cause	Biopsy and histological study: treatment according to findings of this study	
	LARYNX AND NASOPHARYNX		
1. Papilloma and papillomatosis	(a) Internal nose Usually on inner wall of major nasal cavities. Diverse number and form of growths, causing difficulty in breathing and minor hemorrhage.	Recurrent papillomas and papillomatosis -- in any area -- in adults requires surgical therapy. Marked inclination toward recurrence indicates electrocoagulation.	Prophylaxis against precancerous conditions now consists of individual and public hygiene, eliminating unnecessary irritants. This refers to papillomas, papillomatosis,

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	(b) Nasopharynx Usually on the nasopharyngeal surface of the soft palate, occasionally on its other walls. Causes difficulty in breathing through nose, disturbance of hearing (blocking ear canal); minor bleeding on manual examination. (c) Oropharynx On soft palate, particularly on arch. Causes tickling sensation; increase in size causes difficulty in breathing, swallowing and speech. (d) Laryngopharynx Usually in pyriform sinus. Increase in size causes difficulty in swallowing, which increases when the growths extend to the esophagus and the beginning part of esophagus. (e) Larynx and trachea Site of predilection -- above	Papillomas of larynx and trachea, in particular, should not be removed through natural paths: this method would be an added irritation fostering malignancy. Removal of papillomatous areas and electrocoagulation in the larynx and trachea should be performed through laryngeal and tracheal fissures	fibromas, dyskeratoses, adenomas, etc. Abstaining from tobacco, alcohol; industrial hygienic measures, i.e., clean air, controlled temperature, correct regime of work and rest, etc.; sanitary living and work conditions

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	true vocal cords: laryngeal surface of epiglottis, aryepiglottic fold, ventricular ligaments, laryngeal ventricles; occasionally on true vocal cords, in subligamentous region and trachea. Often causes disturbance of phonatory and respiratory functions of larynx		
2. Dyskeratoses: (a) pachydermia (b) leukoplakia (c) leukokeratosis	Primary site: true vocal cords, posterior wall of larynx, anterior commissure, part of esophagus located in the region of the neck. Causes vocal disturbance, frequent, uncontrollable cough. Keratosis often appears gray and white in color	All dyskeratoses must be removed by surgical excision or electrocoagulation	
3. Fibroma on broad base	Appears on true vocal cords on anterior two-thirds; causes dysphonia in form of considerable hoarseness	Laryngeal fibroma on broad foundation requires radical surgery, permissible also through natural entrances	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
4. Contactile fibroma	Develops on true vocal cord -- usually on both -- in area of vocal process: the tumor on one side resembles an anvil in form; the tumor on the other side, with the process, resembles a hammer. The peculiarity of this tumor is that it sometimes becomes malignant or develops into an immature tumor of the connective-tissue type if left untreated. During its development, dysphonia is noticed more readily by singers than by individuals of other professions	Contactile fibroma requires complete removal which is often possible only through a laryngofissure	
5. Adenoma	Commonly occurring in oto-rhinolaryngological organs: interior of nose, pharynx, esophagus, larynx, particularly in vestibular region (above true vocal cords). Disturbs organ's function according to localization.	Removal by surgical excision with electrocoagulation to prevent recurrence	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
6. Chondroma	Usually develops in interior of nose and larynx. Disturbed function of the organs results from size of tumor. The cells of the chondroma lose their membrane and soon develop into chondrosarcoma	Chondroma of the nose and larynx may usually be removed in its entirety by means of surgical excision	
7. Basal fibroid	Develops in nasopharynx, sometimes transforms into fibrosarcoma. Disturbs nasal breathing, penetrates readily into eyesocket and cranium	Subperiosteal removal in its entirety in early stage of tumor's development. This is the only way to prevent recidivity and hemorrhage threatening life	
	MAMMARY GLAND		
1. Dyshormonal hyperplasia of mammary gland A. Nodular type (fibroadenomas)	Single or multiple rounded mono- or polyspherical nodes with smooth surface, well separated from adjacent tissue, easily displaced, of dense or elastic consistency. Occur mainly at 20-30 years of age, but sometimes before and after	Accessibility to removal and possibility of confusion with malignant tumor indicates surgical excision, particularly in women over 30 years of age, and microscopic examination	Normalization of sexual activity and physiological functions of reproductive organs; frequent full-time pregnancy, full-value lactation. Treatment of inflammatory processes occurring in female genitalia. Systematic observation (at least every

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	this period. Development into cancer occurs very seldom		2-3 months) of size and consistency of focal consolidations and changes in the mammary gland
B. Diffuse type 1. Adenosis	Banded moniliform indurated areas extending in radial direction from nipple, located more in the peripheral zone of mammary gland, sensitive to palpation, painful, particularly during premenstrual period, alter in size, consistency and sensitivity in course of menstrual cycle, often bilateral. Occur usually between ages of 25 and 35 years. Rarely become malignant	Complete resorption or partial decrease in size may be achieved by hormone therapy: (a) methyltestosterone sublingually, 2 tablets (5 mg each) 3 times a day in the course of 2-5 intermenstrual periods; (b) solution of testosterone propionate prepared in oil, 25 mg intramuscularly every other day in the course of 2-5 intermenstrual periods; most effective dose = 500-700 mg; dose may go up to 1,000-1,500 mg; (c) solution of synthetic progesterone prepared in oil; for young nulliparas, 10 mg intramuscularly every other day in the course of 3-5 intermenstrual periods	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
2. Fibroadenomatosis	(a) Focal and diffuse indurations without distinct boundaries with microgranular surface, more or less solid-elastic consistency, sensitive to palpation, altering in size and consistency according to phase of menstrual cycle, decreasing in size and softening in horizontal position. Malignant transformation relatively frequent.	Hormone therapy (testosterone preparations) essentially beneficial in initial stages of process. Sectional resection with obligatory histological analysis of excised portion recommended for isolated indurated foci and cystic fibroadenomatosis	
	(b) Fibroadenomatosis of long duration is not infrequently accompanied by the formation of large and small cysts. This form of fibroadenomatosis usually occurs at the ages of 35-45 years, but sometimes earlier.		
	(c) Fibroadenomatosis with intraductal and intracystic epithelial growths is characterized	The only rational form of treatment is sectional resection of affected part with	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	by focal consolidation of greater or lesser density in the pre-areolar zone or on its periphery, occasionally with cyst-like expansion in the areolar zone and secretion (often blood-stained) from nipple (spontaneous or induced by pressure applied to indurated area). Occurs usually between 35-45 years of age, sometimes earlier. Fibro-adenomatosis with intraductal and intracystic growths should be distinguished according to adenomatous, papillary and solid types. Malignant transformation not rare (particularly frequent with intraductal and intracystic growths of solid type)	immediate histological analysis. Radical amputation of breast indicated if findings reveal atypical epithelial growth with frequent mitoses and permeation of connective tissue	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
3. Dysembryoplasia and Dystopia	Well-demarcated, easily displaced indurations in breast, along its periphery or the so-called mammary groove, particularly in axillary region. Malignant transformation comparatively rare	Surgical excision with subsequent microscopic examination advised in view of possibility of malignant transformation and danger of error in diagnosis	
	STOMACH		
Chronic diffuse gastritis	Chronic diffuse gastritis in the form of atrophic anacid gastritis of long duration often gives rise to cancer, developing against background of marked digestive disorders, gastric discomfort, painful sensation in epigastrium with persistent achlorhydria and absence of focal changes in the stomach, according to roentgenoscopic and gastroscopic findings. The development of the "syndrome of minor symptoms" necessitates re-evaluation of the	Strict nutritional regime, individual diet corresponding to functional capacity of stomach. Treatment at sanatorial-health resort	Dispensary observation. Diagnostic laparotomy if process progresses in spite of systematic conservative therapy

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	diagnosis of a given disease not only as a definite precancerous condition but -- in a number of cases -- as the initial stage of cancer		
Chronic focal gastritis	Chronic focal gastrites in form of hyperplastic (less often) or rigid (more often) gastritis may develop into cancer. Clinical manifestations include moderate digestive disturbances, gastric discomfort, dull pain in epigastrium with hyperacidity of gastric juice and focal gastric changes established by X-ray and gastroscopic examinations, i.e., reorganization and swelling of folds of mucous membrane, fine warty processes in antral section or deformation of this section	Strict nutritional regime, individual diet corresponding to functional capacity of stomach. Treatment at sanatorial-health resort. If response to treatment is inconsistent, surgical therapy is indicated -- usually gastric resection	Dispensary observation. Diagnostic laparotomy if process progresses in spite of systematic conservative therapy

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
Gastric ulcer	Chronic recurrent and callous gastric ulcers often undergo malignant degeneration. There are usually symptoms of ulcer of long-standing, lack of marked improvement following carefully conducted therapy, persistent pain, decrease in acid content of stomach, persistent niche revealed by roentgenoscopy	If carefully conducted conservative treatment fails to produce a pronounced effect, gastric resection is indicated	Systematic and carefully conducted dietary, medicinal and sanatorial-health resort treatment of ulcer. In case of callous ulcer -- resection of pyloro-antral section of stomach
Gastric polyps	Single or multiple polyps that have tendency toward progressive increase in size (adenomatous) very often become malignant. Characteristics: prolonged gastric symptoms; persistent achlorhydria nearly always occurs; Gregersen's reaction and X-ray or gastroscopic findings establishing presence of polypous processes on gastric mucosa often positive	Surgical therapy -- gastric resection	Same as for diffuse anacid gastritis

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	LARGE INTESTINE AND RECTUM		
I. Polypous growths of adenomatous type[1] A. Multiple polyposis 1. Adenomatous polyps, so-called "familial polyposis"	Multiple polyposis of large intestine "familial type" occurs in youth and is accompanied by symptoms of chronic colitis (diarrhea with admixture of blood and mucus) and secondary anemia. Affects members of same family for a number of generations. Affects considerable portion of, or entire large intestine, but usually becomes localized in its left half. Cancer develops very often (in more than 50% of patients) and at earlier age than usual	Energetic treatment with antibiotics and sulfanilamide preparations, timely exclusion of affected section by imposing artificial anus. With limited affections -- resection of large intestine or electrocoagulation through rectoromanoscope	Periodic checks at least once every 6 months
2. Focal degenerative hyperplasia against background of previous colitis and proctitis	Fine multiple polyps of adenomatous structure on limited portion of large intestine, mainly on sigmoid colon and rectum; often accompanied by disturbance of	Indicated for accessible polyps of rectum and sigmoid colon -- electrocoagulation in several treatments. For multiple affection of limited area -- intestinal resection	Systematic observation and checks -- X-ray and rectoromanoscopic

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	intestinal function, elimination of blood and mucus. Develop primarily in middle and old age. Malignant transformation comparatively frequent, but considerably less often than in "filial polyposis"		
B. Single polyps	Polyps of adenomatous structure affect mainly sigmoid colon and rectum. Principal symptoms are elimination of blood and mucus. Often occur without symptoms. Malignancy develops comparatively often	Excision or electrocoagulation	Dispensary care and systematic checks every 6 months
	Polyps of villous structure affect principally the ampullae of rectum and sigmoid colon. Characterized by numerous arboreal villi covered with cylindrical epithelium. Clinically manifested by copious secretion of cloudy, whitish	If accessible through anus -- electrocoagulation. If villous polyps are located at higher level over wide area -- resection of affected portion of intestine indicated	Dispensary care and systematic checks every 6 months

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	mucus resembling egg white, occasionally with admixture of small amount blood. Malignant transformation occurs fairly often, frequently originating at top of villi		
II. Chronic ulcerative colitis and proctitis, cicatricial structures	Characterized by persistent intestinal disturbances, alternating constipation and diarrhea, elimination of mucus and admixture of blood, occasional elevations of temperature and general disorders (loss of appetite, anemia). Cancer seldom develops (2-3%)	Unremitting treatment with antibiotics and chemotherapy, diet and regime. For cicatricial structures -- surgical operation	Repeated examinations once every 6 months
III. Non-healing fistulas and fissures of anal region of rectum	Long-lasting, non-healing defects of anal mucosa with thickened callous borders; non-healing fistulas with secretion of pus and infiltrates along fistula	Excision of defect in mucosa or fistula with surrounding infiltrate and obligatory histological analysis	Following hygienic rules and regulation of intestinal function

[1] False polypous thickening and evagination on mucosa (pseudopolyps) of lymphatic or fibrous type (fibrous polyps) do not become malignant and should not be included among precancerous diseases.

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	FEMALE GENITALIA		
External Genitalia 1. Hyperkeratoses (a) leukoplakia (b) kraurosis 2. Limited pigmented formations with tendency toward growth and ulceration	Large and small white patches occurring usually on labia minora, clitoris and perineum. These patches may become confluent, covering entire vulva and perineum, and assume appearance of crumpled parchment paper (so-called kraurosis of vulva). Malignancy develops comparatively infrequently	Principally surgical therapy; possibly, radiation as well	Timely diagnosis and radical treatment of symptoms described
Vagina 1. Leukoplakia	Whitish patches of different sizes appearing on surface of mucous membrane. Malignancy develops comparatively seldom	With progressiveness of process and when areas involved are limited -- diathermocoagulation. In extensive involvement -- radiation therapy	Timely diagnosis and treatment
2. Erythroplakia	Dark red patches of different size and shape on normal mucous membrane. Malignancy rarely develops	With progressiveness of process -- electrocoagulation	Timely diagnosis and treatment

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
Uterine cervix 1. Leukoplakia	Clinical picture same as in vaginal leukoplakia and erythroplakia	Electrocoagulation; with extensive leukoplakia and erythroplakia -- radiation therapy	Timely repair of injuries incurred during delivery, and radical therapy of all the mentioned processes
2. Erythroplakia	Cancer of uterine cervix does not develop particularly often against background of leukoplakia and erythroplakia		
3. Adenomuscular hyperplasia, so-called papillary and follicular "erosions"	Usually develop against background of ectropion of mucosa of cervical canal as result of anatomic deformities following parturient injury of uterine cervix. Biopsy and cytological examination of vaginal smears are indicated in every case suspected of beginning tumorous growth. Adenomuscular hyperplasia often develops into cancer	"Eroded ectropions" indicate conical electroexcision; when in combination with hypertrophy and elongation of cervix, Shturmdorf's operation indicated. For small ectropions -- electrocoagulation or electropuncture	Timely repair of injuries incurred during delivery, and radical therapy of all the mentioned processes

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
4. Polyps of uterine cervix, particularly ulcerative	Malignant transformation comparatively rare	Single polyps -- electrocoagulation. Multiple polyps -- electro-excision. With corresponding indications -- preliminary (no earlier than 2 weeks before diathermy) curettage of uterine cavity	Timely repair of injuries incurred during delivery, and radical therapy of all the mentioned processes
Uterine body 1. Adenose hyperplasia of mucosa (particularly recurrent during climacteric and post-climacteric age)	Usually manifested by acyclic bleeding	Curettage of uterine cavity, followed by periodic examination; hormone therapy (hormone from corpus luteum or androgens) if indicated. In case of frequent recurrences -- radical surgical therapy (hysterectomy) or radiation therapy	Same as therapeutic
2. Adenomatosis	Adenose hyperplasia leads to cancer comparatively often during post-climacteric age; malignancy develops even more often from adenomatosis	In adenomatosis -- hysterectomy	Same as therapeutic

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
3. Polyps of mucous membrane	Polyps -- particularly multiple -- undergo malignant transformation	Curettage of uterine cavity	Same as therapeutic
4. Hydatidiform mole	Enlargement of uterus not corresponding to period of pregnancy, sometimes accompanied by bilateral ovarian tumors and desquamation of particles of hydatid mole	Curettage of uterine cavity, performed once	Systematic observation of patient for 1 year. Urinalysis, Aschheim-Zondek reaction (in numerous tests)
Benign ovarian tumors	Presence of tumorous appendages. Despite the great diversity of histological forms of ovarian tumors, malignant transformation occurs in all forms, though in varying degree. Cancer develops most often from cilio-epithelial cysts, particularly their proliferative forms.	Surgical removal of ovary affected by tumor. Removal of both ovaries in climacteric and postclimacteric age if papillary cyst occurs	

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
		URINARY BLADDER	
1. Primary leukoplakias of mucosa of urinary bladder	Whitish patches on inflamed mucous membrane. Symptoms of chronic, persistent cystitis. Diagnosis established by cystoscopy. Cancer seldom develops	Hydrochloric or phosphoric acid internally to lower acid content of urine. Local treatment, bladder irrigation	Dispensary observation with repeated cystoscopic examination
2. "Aniline cystitis" among workers in aniline-dye industry	Occurs in individuals who work for prolonged periods of time in atmosphere containing fumes of industrial aniline (beta-naphthalamine). Clinical symptoms of chronic cystitis. Cystoscopy reveals petechial hemorrhage in mucosa	Symptomatic treatment	Protective measures against noxious chemical substances. Systematic examination of urine and systematic cystoscopic examination. Change of job
3. Papillomas	Papillomas may be occupational (produced by aniline) and non-occupational. Villous tumors on narrow pedicle. Profuse hematuria is usually first clinical symptom. Disturbance of micturition occurs also.	For small, single papillomas -- endovesical electrocoagulation; for large or multiple papillomas -- electrocoagulation following cystotomy	Systematic observation with repeated cystoscopic examination

Classification	Clinical Characteristics	Therapeutic Measures	Preventive Measures
	Diagnosis confirmed by cystoscopy. Malignant transformation occurs quite often		
4. Adenomatous growths and adenomas	Villous growths, usually on apex of bladder. Principal clinical symptoms: hematuria and large amount mucus in urine. Diagnosis established by cystoscopy. Cancer develops quite often	Surgical therapy: electroexcision of tumor	Systematic observation with repeated cystoscopic examination

Approved by Presidium
of Scientific Council
of Ministry of Health
USSR, 24/4/1956

METHODICAL INSTRUCTIONS
on the Treatment of Malignant Tumors

General Methodical Instructions

1. According to the present level of knowledge, the best means of treating cancer are surgery and radiation. Surgical therapy may be employed alone or in combination with radiotherapy. The latter method is conventionally designated "combined." In radiotherapy, external roentgentherapy or teleradium therapy are usually administered concurrently with intracavitary or interstitial radium therapy; this is called "concurrent" therapy.

Separate administration of chemotherapy, cytotoxic substances and hormone preparations is expedient in individual cases only, and with corresponding indications.

2. The surgical methods of treatment include both cutting and electrosurgical operation (electrocoagulation, electro-excision). Radiotherapy, at the present time, is applied mainly with roentgen rays (roentgentherapy), gamma rays from true radioactive substances (radium, radium-mesothorium), and beta and gamma rays from artificial radioactive substances (radium therapy).

3. Cutting, electrosurgery, roentgen- and gamma therapy are by no means competitive. In different patients, with different clinical sites, forms and stages of cancer, preference may be given to any of these measures or their correct combination.

4. The effectiveness of treatment depends directly on timely diagnosis and the earliest possible correct therapy. The therapeutic effect is increased by general therapeutic measures directed toward strengthening the patient's reactivity.

Special attention should be given to improving the morale of patients with cancer. Daily concern for their psyche is not only a humane obligation on the part of the physician, but is also an important part of therapy.

5. The principal and obligatory rule of therapy should be strict individualization in formulating the plan of treatment: it is necessary to determine the patient's general condition, the stage of the disease, the macroscopic form of the tumor's growth, its histological structure, if possible, and the accompanying complications.

6. Both surgical and radiotherapy should be preceded by thorough and complete preparation, though of short duration, of the affected area and of the patient's general condition.

7. In carrying out surgical therapy, the requirements of intelligent radicalism and rules of oncological ablation should be observed. The removal of an affected organ -- in part or in its entirety -- may be considered radical only where the ablation includes the affected focus and the regional lymph nodes with drainage sinuses with only one block (when anatomically possible). It is inadmissible to remove individual lymph nodes that have metastasized or are suspected of metastasis. Widening the area of surgical operation by removing many organs is advisable only in singular cases.

8. The therapeutic effect depends on both the biological factors, i.e., the patient's general condition, histological structure of the tumor, its site, stage, etc., and the physical factors. Among the latter, the decisive role in the success of therapy is played primarily by a correctly determined optimal therapeutic dose with maximal prevention of tissue damage, and secondly, the most beneficial distribution of doses both in the amount of radiation and in time.

9. The concentration of the therapeutic dose and its even distribution in the irradiated tumor are effected by various technical and methodical methods. These methods are based on the principle of subjecting the tumor to the therapeutic dose of radiant energy by means of external, intracavitary or interstitial irradiation with various types of ionizing rays.

10. The necessary prerequisite for successful radiotherapy of cancer is exact dosimetry for all ionizing rays employed in single juxtaposed units, permitting a strict calculation of the amount of radiant energy absorbed by the tissues. Such a generally accepted unit is the roentgen (r) and its physical and biological equivalents. All other units of dosage, e.g., the milligram-clock for radium, indicating only the total amount of radiant energy, should not be used in medical practice. In determining the amounts of the individual and aggregate doses it is necessary to establish the depth to which the root of the tumor extends. This is particularly important in radiotherapy of deeply located tumors of the internal organs, e.g., cancer of the esophagus. To prevent radiation damage to the tissues, it is also necessary that the dose of radiant energy on the surface of each field of entry on the skin be strictly calculated.

11. Radiotherapy must be carried out by a definite, previously worked out plan. In making the plan it would be expedient to proceed from the following scheme, which contains correctives depending on the individual condition of the patient and the clinical peculiarities of the disease:

(a) selection of method of radiotherapy, determination of amount of therapeutic dose, the order of distributing it in volume of radiation and time;

(b) selection of suitable technical conditions for irradiation.

12. Radiotherapy of cancer produces the best effect when administered in one intensive course. It is inexpedient to consider the effectiveness of subsequent courses of treatment if the first proved unsuccessful.

13. The modern methods of radiotherapy, requiring exposure to large aggregate doses of radiant energy for the successful treatment of cancer, are necessarily connected with radiation reactions manifested on the exposed areas of the skin in the form of erythema and dry and moist epidermitis, and on the mucosa in the form of hyperemia and epithelitis. Careful handling of the skin and mucous membranes in the process of radiotherapy reduces the severity of these reactions. Various substances are used to prevent and treat radiation reaction: 1% aqueous solution of gentian violet, 30% balsam of Shostakovskiy, oil of sea buckthorn, thesane emulsion, 2% solution of novocain with adrenalin, etc.

14. Repeated blood transfusions (100-150 ml), thesane, campolon, antianemin, vitamins B_{12}, B and C, nicotinic acid, intravenous injection of glucose solution, urotropin, etc., are administered for the prevention and treatment of general radiation reactions.

15. Classification of malignant tumors according to stages should serve the purposes of formulating a plan of treatment, unifying methods of treatment of cancer, a uniform record and evaluation of remote results of therapy. Underlying the classification is the principle of dividing malignant tumors into four stages, depending on the size and nature of growth of the initial focus, its proliferation on adjoining tissues and organs, the existence or absence of proximal or remote metastases.

Detailed instructions on the separation of malignant diseases of different organs according to clinical stages of progressive development is presented below with a description of the methods of treating the tumors of each individual localization.

It should be emphasized that the malignant tumors included under clinical stage I are the most responsive to therapy; stage II tumors are still completely accessible to radical therapy; in stage III, radical therapy is indicated in some cases, but is comparatively ineffective; for tumors in stage IV, only palliative or symptomatic treatment is possible for the most part.

CANCER OF THE SKIN

Classification

Stage I. Tumor or ulcer up to 2 cm in diameter, circumscribed by its own derma, moves with the skin; no metastases.

Stage II. Tumor or ulcer more than 2 cm in diameter growing through the entire thickness of the skin without spreading to the adjoining tissues of single, small, completely mobile metastasis may occur in lymph nodes located near-by.

Stage III. (a) Tumors of considerable size with limited mobility, growing through entire thickness of skin and underlying tissue, but not extending to bone or cartilage; no definable metastases.

(b) Same kind of tumor or smaller in size, but with numerous mobile metastases or a single, more or less stationary metastasis.

Stage IV. (a) Tumor or ulcer spreading widely over the skin, growing into underlying soft tissue, cartilage or bone.

(b) Tumor of smaller size with stationary regional or remote metastases.

Applied Methods of Treatment

1. Radiotherapy: roentgentherapy or radium therapy

2. Concurrent radiotherapy

3. Surgical therapy (cutting and electrosurgical)

4. Combined therapy (surgical and radiation). In individual cases of stage I cancer of the skin, with thick surfaces and a sufficient interlayer of underlying soft tissues, the initial focus may also be treated with Gordeyev's solution or omaine ointment.

A. Cancer of Facial Skin and Scalp

Stage I: surgical and radiotherapy equally effective. The advantage of the latter lies in better cosmetic results, which is particularly important when the tumor is located in the natural openings of the face and in the corners of the eyes.

Stage II: radiotherapy in every case.

Stages III and IV: combined or concurrent radiotherapy for majority of patients. In certain cases, if the patient's general condition permits, it is expedient to make a bilateral ligation of the external carotid arteries two to three days before starting radiotherapy.

Recurrences of skin cancer following unsuccessful surgical therapy should be treated by radiotherapy if there are no extensive scars, and by electrosurgical operation in the event of scars.

Recurrence of skin cancer following unsuccessful radiotherapy indicates electrosurgical excision or coagulation.

The same treatment is recommended for skin cancer that develops on scars following a burn, lupus and syphilis.

B. Skin Cancer of Torso and Extremities

Because skin cancers of the above-mentioned localizations have a tendency to metastasize frequently, surgical therapy is preferred in operable cases. However, radiotherapy, alone, may be used for small growths and particularly for initial plurality of skin cancer.

Mobile metastases of skin cancer and regional lymph nodes indicate surgical therapy with extensive excision of the adjoining cellular tissue and aponeuroses. Stationary metastases should first undergo radiotherapy and then, if possible, surgical removal. Recurrences following unsuccessful radiation or surgical therapy indicate electrosurgical excision. The removal of skin cancer is carried out within the boundary of healthy tissue, at least 2 cm beyond the visible border of the tumor with respect to both plane and depth.

Plan for Treatment, etc., of Skin Cancer According to Stages of Malignancy

Stage I

Treatment of Initial Focus

Roentgentherapy. Low-voltage proximal-focus roentgentherapy is the best method of treatment in this stage. Conditions of radiation:

voltage 30-90 kv (depending on construction of apparatus), filter 0.5 mm Al and 0.2 mm Cu. Treatment is administered daily with single dose 300-500 r, aggregate dose 6,000-8,000 r.

Radium therapy, (a) Contact therapy. Radioactive preparations with activity of from 2 to 5 mg are fixed on a cast[1] in a small chain along the external boundary of the tumor. Filter equivalent 0.5-1 mm Pt. Focal distance of skin from 0.1 (contact) to 1 cm. With daily exposure in the course of 15-20 hours the aggregate dose amounts to 5,000-7,000 r (intensity of radiation, 30-60 r/hr). With the fractional method of radiation (under dispensary conditions) the length of a single exposure depends on the intensity of radiation (60-90 r/hr). Daily dose 500-600 r. The less the period of a single exposure the higher the daily dose should be. Aggregate dose 6,000-7,000 r.

(b) Interstitial radiation. Needles containing 0.5-1 mg radioactive substance are introduced in a continuous chain into the thick part of the tumor's border. Filter equivalent 0.3-0.5 mm Pt. Total dose 5,000-6,000 r (intensity of radiation approximately 30-60 r/hr). Total period of irradiation two to seven days.

Surgical therapy. A facial skin tumor is removed within the bounds of healthy tissue, at least 1 cm in width and depth beyond the defined borders of the tumor. If cancer occurs on the skin of the torso and extremities, the tumor is removed electrosurgically at least 2 cm beyond the defined border.

Stage II

Treatment of Primary Focus

Roentgentherapy and radium therapy -- same as in stage I of skin cancer.

In radium therapy, depending on the size of the tumor, either one or several preparations (not exceeding 10-30% of the total weight) are introduced into the center of the tumor, in addition to the chain of preparations distributed along its border, for evenness of radiation.

Interstitial radiation (total dose up to 4,000-6,000 r; intensity of dose 25-30 r/hr) may be employed to remove residual tumor tissue that remain after external radiotherapy.

[1] Note: The cast is prepared from a plastic mass; the technique of preparation is like that of the cast discussed in the special instructions.

In cancer of the eyelid in stages I and II, interstitial radiation is preferred to contact therapy. Maximal abduction of the irradiated eyelid is necessary in order to protect the eyes; this is accomplished by pulling down the eyelid.

Surgical therapy. Skin cancer of the torso and extremities indicates electrosurgical removal of the tumor 2 cm beyond its borders. Skin cancer of the external ear in stages I and II indicates electrosurgical therapy.

Stage III

Treatment of Primary Focus

Roentgentherapy. Fractional method used under following technical conditions: voltage 160-180 kv, filter 0.5-1 mm Cu, focal distance of skin 30 cm. The number of fields of exposure is determined by the size and configuration of the tumor. With daily exposure to a single dose of 200-300 r, the total dose amounts to 4,000-6,000 r. In the process of therapy it is recommended that the field of exposure be reduced in size with a simultaneous increase in the single dose to 400-600 r.

Radium therapy. Telegammatherapy is the most effective. Treatment conducted by proximal-focus gamma-ray apparatus. Single dose 200-300 r, total dose 4,000-5,000 r.

Following external roentgen- or telegammatherapy, interstitial radiation may be employed to remove residual tumor tissue. Needles are placed in 2-3 levels, depending on the size of the tumor. Total dose 3,000-6,000 r (intensity of radiation 25-30 r/hr).

Surgical therapy. May be used as the final stage of concurrent radiotherapy or as independent therapy of tumors that develop against a background of extensive cicatrization from burns, lupus, syphilis and radiation injury.

Stage IV

Treatment of Primary Focus

Radiotherapy. Roentgen- and telegammatherapy are used only in individual cases by the method indicated for the treatment of skin cancer in stage III. If external radiotherapy has been effective, it is sometimes rational to use electrosurgery for the excision of residual tumor tissue within the boundary of normal tissue and for the removal of cancerous bone tissue.

Treatment of Metastases of Skin Cancer

The best method of treating mobile metastases of skin cancer in the regional lymph nodes is surgical operation with extensive ablation of all cellular tissue and fascia with the lymphatic apparatus. The treatment indicated for more or less stationary metastases is combined therapy: preoperative roentgen- or telegammatherapy and, after the symptoms of reaction have subsided, excision of the lymphatic apparatus, preferably by electrosurgical means.

Roentgentherapy. Technical conditions: voltage 180-200 kv, filter 0.5-1 mm Cu, focal distance of skin 30-40 cm. Number of fields determined by form and size of tumor; daily exposure to single dose of 200-250 r, total dose (for all fields) amounts to 5,000-7,000 r.

Telegammatherapy. (by GUT-Co-400 and GUT-Co-20 gamma-ray apparatus). Quantity of fields depends on form and size of tumor. Focal distance of skin 6-35 cm. Single dose 250-300 r; total dose for all fields 6,000-8,000 r. The metastases remaining after radiotherapy, having decreased in size and restored relative mobility, may be removed, where possible, with the cellular tissue and fascia and, on the neck, with the jugular vein as well.

MALIGNANT MELANOMAS OF SKIN

Malignant melanomas of the skin present considerable difficulty with respect to both diagnosis and treatment. In this connection, as an exception to the general rule, melanoma is not separated into four stages; only two forms are distinguished, i.e., primary and diffuse.

The malignant transformation of the pigmented skin growth is manifested by the following symptoms: increase in size, thickening, increase or decrease in pigmentation, ulceration, fissures, redness and zone of stasis around pigmented spot or at the base of pigmented warts. The occurrence of a pigmented rash around a seemingly benign pigmented spot also attests to its malignant nature and denotes dissemination of the tumor.

Biopsy on suspicion of malignancy of the pigmented spot or wart is strictly contraindicated.

The initial form of melanoma is a growth that has no signs of local or metastatic diffusion. Timely and correct therapy produces lasting recovery in a certain percentage of cases.

The diffuse form of melanoma is characterized by signs of local infiltration or dissemination in the integument or involvement of the lymph sinuses and nodes and the occurrence of individual metastases. Active methods of treatment have little effect on these forms.

On the strength of the above information, it is impossible to recommend a single practically-proven method of treatment of malignant melanomas. The latter contraindicate any surgical therapy under polyclinical conditions. Each suspected case should be referred to specialized institutions for consultation in order to establish the diagnosis and formulate a plan of treatment.

Applied Methods of Treatment

1. Surgical
2. Radiation
3. Combined

Surgical Therapy

Surgical therapy of melanoma of the skin is carried out by means of electrosurgical excision of the focus together with surrounding and underlying normal tissue to the maximal permissible limits, but not less than 3 cm beyond the edge of the focus. A coagulated ridge is formed around the tumor with a needle-like electrode, or rather an electrode with numerous leads. The tissue along this ridge is excised by an electric cutting instrument to the maximum depth permitted by anatomic conditions. The tumor is then blocked from below by the pricks of the electrode, and not until then is the growth removed in the form of a disk. Additional coagulation of the floor of the excised area is carried out. The wound should be constricted but not sutured; plastic closure is not permissible.

Melanoma that is in direct proximity to the initial regional lymphatic barrier, not more than 5-6 cm in distance, indicates excision of the primary focus with the skin surrounding it, the underlying tissues and regional lymph apparatus with one block alone. Metastases in the regional lymph nodes indicate the most extensive removal of the tumor.

The occurrence of melanomas on the hands, the inner surface of the forearm, the anterior surface of the tibia, i.e., where radical ablation of the primary focus is impossible, indicates amputation of the extremity above the first lymphatic barrier.

Radiotherapy

Only proximal-focus roentgentherapy is used.

Radiation is applied from one or several fields. In the beginning the field of irradiation includes the tumor and surrounding tissue for the extent of 3 cm. During the process of treatment the field is gradually diminished and the single dose increased. As a result, the tumor itself is subjected to the greatest radiation action, and the intensity of radiation to which the surrounding tissues are exposed diminishes at the periphery. Conditions of radiation: voltage 50-60 kv, power of current 4 ma, filter 0.2 mm Cu, focal distance of skin 5 cm. Single dose 300 r at first; may be increased to 500-600 r as the field of radiation is diminished. Total dose on tumor 15,000-20,000 r. If the tumor is located directly on bone (anterior surface of tibia, skull, hands, etc.) the single dose should not exceed 300 r, and the aggregate dose 10,000-12,000 r.

Combined Therapy

Treatment is begun with proximal-focus roentgentherapy, which is conducted according to the plan presented above. After the reactive symptoms have subsided (this usually takes 15-20 days), the residual tumor tissue is excised by an electric cutting instrument, within the boundaries of normal tissue, according to the method presented above.

In the event that malignancy of the melanoma had not been discovered prior to operation and was established only with subsequent histological study, postoperative proximal-focus roentgentherapy of the area of the scar is indicated.

Interstitial radium therapy of melanomas of the skin are contraindicated.

To prevent the malignant transformation of melanoma, the extensive removal of those benign squamous and verrucose pigmented formations which frequently are subjected to traumatization is recommended.

CANCER OF LOWER LIP

Classification

Stage I. Tumor or ulcer 1-1.5 cm in diameter confined within the thickness of the mucosa and submucous layer of the vermilion border of lip; no metastases.

Stage II. (a) Tumor or ulcer, also confined within the mucosa and submucous layer, more than 1.5 cm in size, but occupying not more than half the vermilion border of the lower lip.

(b) Tumor or ulcer of same size as above or smaller, but with 1-2 mobile metastases in regional lymph nodes.

State III. (a) Tumor or ulcer occupying large portion of lip, with intergrowth in its thickness or extending to corner of mouth, cheek and soft tissue of chin.

(b) Tumor or ulcer of same size or smaller, but with metastases with markedly limited mobility in chin and submaxillary regions.

Stage IV. Disintegrating tumor occupying large part of lip, with intergrowth through its entire thickness and spreading not only to the corner of the mouth and chin but to the maxillary bone. Immobile metastases in regional lymph nodes. Tumor of any size with remote metastases.

Currently, the leading and most effective method of treating cancer of the lower lip is the combined method. It is carried out in two stages: The first stage is directed toward the elimination of the primary focus on the lip; the second -- toward combatting regional lymphatic metastases.

The most effective method of dealing with the primary focus is radiotherapy -- radium or roentgentherapy or concurrent radiotherapy. For small tumors, 0.5-1 cm in diameter, situated no closer than 1.5 cm from the corner of the mouth, surgical therapy is equally effective -- extensive quadratic or rectangular (but not wedge-shaped) excision.

Surgical therapy is also the most rational method for recurrences of cancer following radiotherapy. The primary focus of cancer may also be treated successfully by coagulation.

The treatment of the primary focus should begin in every stage with obligatory oral hygiene.

The second stage of treatment, directed toward combatting regional metastases, is carried out by means of surgical operation: radical excision of the entire lymphatic apparatus, the upper portion of the neck, chin, both lower maxillae with submaxillary glands, the fatty tissue and all the lymph nodes contained in it by means of a single block.

Surgery is performed whether the enlarged lymph nodes are palpable or not. Surgery is contraindicated only in case of physical weakness or old age or immobile metastatic nodes.

If there is doubt regarding the completeness of ablation by the operation performed, it is advisable to apply the following radiotherapy:

(a) insertion of radioactive preparations in the wound;

(b) external radiation (roentgen- or telegammatherapy).

Stage I

A. Treatment of Primary Focus

Roentgentherapy. (a) Proximal-focus roentgentherapy. Technical conditions: voltage 50-80 kv; filter 1 mm Al and 0.2 mm Cu; focal distance of skin 5 cm. The fields of irradiation are crossed: the vermilion border of the lip and the mucous membrane of the lower lip. A single dose of 400-500 r is given daily; aggregate dose 4,000-6,000 r.

(b) In the absence of an apparatus for proximal-focus roentgentherapy, radiation may be applied with the ordinary apparatus under the following technical conditions: voltage 120-150 kv; filter 1-3 mm Al (up to 0.5 mm Cu), focal distance of skin 30 cm. A single field of irradiation includes 0.3-1 cm of unaltered tissues around the tumor of the vermilion border (position: lower lip everted and fixed). Single dose of 300-500 r given daily. Total dose 4,000-6,000 r.

Radium therapy. Interstitial method: needles containing 0.5-1 mg radioactive substance are introduced into the thick portion of the outer ridge of the tumor in a continuous chain along the perimeter of the tumor. Filter 0.3-0.5 mm Pt for radium, and a corresponding equivalent for needles of radioactive cobalt. Total dose 5,000-7,000 r. Strength of dosage 30-35 r/hr. Total period of irradiation 5-6 days.

For even irradiation it is necessary that the lip be everted as far as possible with mucous membrane exposed, holding it down with a strip of gauze or placing a gauze roll.

During irradiation it is also necessary to protect the alveolar process of the lower jaw, the oral cavity and the upper lip by means of a lead plate covered with stencil (stensom).

Surgical therapy. Under local anesthesia, a quadratic or rectangular (by no means wedge-shaped) resection of the diseases area of the lip is performed, extending 1-1.5 cm beyond the border of the tumor, with lateral flaps placed by plastic surgery.

B. Therapy of Regional Metastases

Two to three weeks after completion of treatment of the primary focus by one of the above-mentioned methods, bilateral surgical removal of the cellular tissue and lymph nodes is performed.

The operation is performed under local anesthesia. An incision is made from the corner of the lower jaw to the middle of the chin, and a second incision is made perpendicularly to it, a little beyond the corner of the jaw downward. With a single block, the fascia and cellular tissue are removed with their lymph nodes and sinuses in the chin and submaxillary region simultaneously with the submaxillary glands and the lower poles of the parotid glands.

The second stage may be omitted only when systematic observation of the patient for at least one year can be guaranteed.

Stage II

A. Treatment of Primary Focus

Treatment is carried out by the methods of radiation described in Stage I. Surgery is not recommended.

B. Treatment of Regional Metastases

Treatment is the same as that of cancer in the first stages. It is obligatory in the absence of contraindications.

Stage III

A. Treatment of Primary Focus

Roentgentherapy. Technical conditions: voltage 180-200 kv; filter 0.5-1 mm Cu; focal distance of skin 30 cm. Field of irradiation is determined by the size of the tumor (with inclusion of healthy tissues by 2 cm).

To achieve evenness of radiation it is recommended that the central beam be directed on the tumor alternately: tangentially from right to left and perpendicularly to the center of the tumor. To increase the focal dose, moreover, it is necessary to diminish the size of the field of irradiation in measure with the decrease of the tumor, simultaneously increasing the single dose. The total dose is 4,000-6,000 r. The single dose is 300-500 r (500 r for a small field). Radiation is applied daily.

For small primary tumors of the lower lip, proximal-focus roentgentherapy may also be applied.

For particularly resistant areas of the tumor, the recommended procedure is selective supplementary irradiation of small fields in addition to irradiation of the entire tumor.

Radium therapy. (a) By means of a proximal-focus gamma apparatus. The size of the field and the direction of the central ray are the same as in roentgentherapy, but it is technically impossible to decrease the size of the fields of irradiation. The total dose is 4,000-5,000 r. The single dose is 300-500 r. Radiation is applied daily.

(b) Interstitial radium therapy, as an independent method of treatment, is not used. It is indicated in conjunction with preliminary external spaced radiation (roentgentherapy or gammatherapy).

Needles are introduced into the residual tumor in the final stage of radiotherapy. The needles, containing 1-3 mg radioactive substance, are placed according to the usual arrangement. The dose is 2,000-3,000 r with strength of dose 30-35 r/hr.

Surgical therapy is not used as an independent form of treatment. Only in certain cases may a small residual tumor be removed by electrosurgical means.

B. Treatment of Regional Metastases

Surgical therapy is applied for mobile regional metastases.

The operation is performed under local anesthesia. One incision is made from the corner of the lower jaw to the middle of the chin, and a second incision is made perpendicularly to the first, somewhat behind the corner of the lower jaw and downward. With one block, the fascia and cellular tissue of the neck with their lymph nodes and sinuses are removed in the area of the chin and submaxillary region; the submaxillary glands and lower poles of the parotid glands are also removed. Excision is performed up to the level of the chiasm of the omohyoid muscle with its vascular tract. The occurrence of macroscopically determined metastases adhering to the jugular vein indicates simultaneous resection of the latter; with adhesion of the sternocleidomastoid muscle, a larger portion of the muscle is removed.

If there is doubt of complete ablation by the operation performed, it is expedient to apply radiation therapy as follows:

(a) insertion of radioactive preparations in the wound (activity of 3-4 mg) at the conclusion of operation. The preparations are fixed by the application of a single catgut suture. The total dose is 4,000-4,500 r with intensity of 30-35 r/hr. After 4-5 days, on completion of irradiation, the preparations are withdrawn from the sutures;

(b) external irradiation (gamma-ray therapy or roentgentherapy): (1) telegammatherapy with proximal-focus gamma-ray apparatus; total dose 3,000-3,500 r; single dose 300-350 r: radiation applied daily;

(2) roentgentherapy under the following technical conditions: voltage 180-200 kv; filter 0.5 mm Cu and 1 mm Al, focal distance of skin 30 cm; total dose 2,500-3,000 r; single dose 200-250 r; radiation applied daily.

The occurrence of limited mobile or immobile metastases indicates combined therapy: preoperative telegammatherapy or roentgentherapy.

If the mobility of the metastases is restored following radiotherapy, they are surgically removed. The average total dose in preoperative roentgentherapy is 3,500-4,000 r, and in telegammatherapy 4,000-6,000 r.

If the mobility of the metastases is not restored following treatment, but they are substantially reduced in size, radiation should be applied to the limit of the tolerance of the skin, so that, after the reactive symptoms have subsided (3-4 weeks later) radium-bearing needles may be introduced into the residual metastatic tumor. The needles are introduced in the usual way; the average dose is 3,500-5,000 r with intensity of 25-40 r.

Stage IV

Treatment of Primary Focus

Radiotherapy (roentgen- or telegammatherapy) may be applied in individual cases for palliative purposes. Surgery is contraindicated. In the absence of contraindications, preliminary bilateral ligation of the external carotid arteries may be performed.

Treatment of Recurrences of Cancer of Lower Lip

1. Recurrence of cancer following surgical operation indicates radiotherapy: roentgentherapy, telegammatherapy or interstitial therapy.

2. If cancer recurs following radiotherapy, a different form of this therapy should be tried, or, if possible, electrosurgical therapy.

System of Treating Regional Recurrences (secondary metastases)

1. The occurrence of single mobile metastases indicates combined therapy: following preoperative radiation -- surgical excision within the boundaries of normal tissue, using the above-described surgical technique.

2. With multiple metastases or metastases with limited mobility, it is permissible to apply radiotherapy within the limits of the tolerance of the tissues by the method described above for preoperative radiation.

3. With relatively shallow metastases, it is also possible to introduce radium-bearing needles into the reduced metastases following preliminary external spaced radiation. The needles piercing the metastatic node are placed 1 cm apart; the dose is 4,000-6,000 r, counting the dose of external irradiation.

CANCER OF TONGUE

Classification

Stage I. Limited tumor of mucous membrane and submucous layer of tongue, 0.5-1 cm in diameter. Metastases in regional lymph nodes are not defined.

Stage II. (a) Tumor or ulcer of larger size, growing into the thick portion of muscular tissue, but not extending beyond the center of the tongue.

(b) Tumor or ulcer of the same size or smaller, with unilateral single mobile regional metastases.

Stage III. (a) Tumor or ulcer extending beyond center of tongue or to the floor of the oral cavity.

(b) Tumor of the same size, but with multiple mobile regional metastases or single metastases with limited mobility.

Stage IV. Tumor affecting the greater part of the tongue, extending not only to the adjacent soft tissues but also to the bones of the face. Multiple regional metastases with limited mobility or single non-mobile metastases. Tumors of smaller size, with single non-mobile regional or remote metastases.

The best therapeutic results in cancer of the tongue are obtained at the present time with the combined method of treatment: (1) preoperative radiotherapy of the primary focus of cancer; (2) radical electrosurgical operation of primary focus -- electroexcision or extensive electrocoagulation of the entire affected area of tongue; (3) extensive surgical excision of the lymphatic apparatus of the chin, submaxillary region and neck; a single block employed.

The fight against lymphatic metastases is the final and always an obligatory stage of combined therapy, regardless of whetehr metastases in the lymph nodes were discovered prior to operation.

Therapy should be applied only after thorough dental care -- extraction of carious teeth, denticles, metallic crowns, prostheses, etc.

First Stage of Treatment

The most rational method of treatment of cancer of the tongue is preoperative irradiation of the primary focus with telegamma radiation in conjunction with simultaneous proximal-focus roentgentherapy.

Second Stage of Treatment

Of two forms of electrosurgical therapy of the primary focus -- electroexcision or extensive electrocoagulation.

Third Stage of Treatment

Regional metastases in cancer of the tongue are most effectively treated by surgical operation, performed 2 1/2-3 weeks after the second stage of treatment.

Stage I

Treatment of the Primary Focus
Combined Treatment

First stage. Preoperative radiation in the form of telegammatherapy of only the submaxillary field; single dose 250-300 r; total dose 4,000-6,000 r.

Telegammatherapy should be given in conjunction with intraoral proximal-focus roentgentherapy. Proximal-focus radiation is applied from the first day of treatment simultaneously with gamma-ray therapy (on the same day).

With proximal-focus roentgentherapy the boundaries of the fields of radiation should exceed the size of the tumor by 2 cm. The field of irradiation is diminished according to the reduction in size of the tumor. Radiation is applied daily; single dose 300-350 r. For small fields of irradiation (2-4 cm^2), the single dose may reach 500 r. Total dose 3,500-6,000 r.

Second stage. Three to four weeks after the postradiation reactive symptoms have subsided, electrocoagulation or semi-electroexcision of the affected half of the tongue are performed.

The technique of semi-electroexcision of the tongue is as follows: the operation is performed under local conduction anesthesia. Infiltration anesthesia is less efficient in electrosurgical operation. Anesthesia is begun with the blocking of the pharyngeal reflex by applying a 5% solution of cocaine to the pharynx and tongue, followed by typical bilateral mandibular anesthesia with a 2% solution of novocain and desensitization of the root of the tongue through the neck. A silk suture is applied to the tongue to facilitate its stretching. After good visibility is obtained, the area to be excised is outlined by means of electropuncture. Special emphasis should be placed on the expediency of this procedure, since, in the process of the resection itself, anatomic interrelations are altered, which may lead to a deviation from the outlined borders of excision of the tumor. The operation is begun by applying a looped suture of thich catgut through the entire thickness of the half of the tongue to be removed at a maximal distance from the posterior border of the tumor at the root of the tongue. This suture, like a tourniquet, constricts the operative half of the tongue, and thus obstructs the blood supply to the area of ablation. If it is necessary to remove the arch of the soft palate also, another suture is looped through this area. The application of these sutures entirely replaces the usually applied preliminary ligature of the external carotid artery. Bleeding in the floor of the oral cavity is stopped by electrocoagulation.

Semi-electroexcision of the tongue is best performed beginning from the tip of the tongue. By gradually dissecting the tongue and immediately applying catgut sutures to the remaining part of it, it is possible to reach the root of the tongue with almost no loss of blood. A transverse resection of the excised half of the tongue is preferably performed from the center outward; this is much more convenient than a reverse resection from the outer surface inward, particularly with a poorly opened mouth.

On completion of the resection, 3-5 radium-bearing needles, containing 1-3 mg radioactive substance, are introduced into the remaining half of the tongue in the area corresponding to the area of location of the removed tumor. The total dose is 3,000-4,000 r; the strength of the dose 30-40 r/hr.

If the preoperative radiation included proximal-focus roentgen-therapy, needles are not introduced after semi-electroexcision.

With shallow tumors, success may also be achieved with extensive and deep electrocoagulation of the affected region of the tongue, with simultaneous introduction of radioactive needles on the border of the zone of coagulation.

Following the operation, there is considerable edema in the oral cavity and submaxillary region, dysphagia, and elevation of temperature. In connection with this, careful medical care of the oral cavity is essential. The best prophylaxis of purulent-inflammatory processes in the oral cavity is the administration of antibiotics.

If secondary hemorrhage occurs following electrosurgical therapy, it is necessary to perform a unilateral -- sometimes bilateral -- ligation of the external carotid artery directly above the origin of the superior thyroid artery.

Third stage. Surgical removal of the lymphatic apparatus in the chin and submaxillary region of the neck. The technique of operation is described in the section on the treatment of cancer of the tongue in the second stage.

Stage II

A. Treatment of Primary Focus

The primary focus is treated according to the plan indicated for cancer in the first stage.

B. Treatment of Regional Metastases

This treatment consists of the surgical removal of the lymphatic apparatus in the chin and submaxillary region of the neck.

The operation is performed under conduction anesthesia 2 1/2 to 3 weeks after the second stage of therapy. One incision is made under the rim of the lower jaw, from the corner of the jaw to the middle of the chin; a second incision is made in a perpendicular line to the first, diverging a little to the front of the corner of the jaw and downward to the clavicle. The zone of removal of the cellular tissue and cervical lymph nodes stretches from the clavicle to the rim of the lower jaw, including the submaxillary gland and the inferior pole of the parotid, and the cellular tissue up to the mastoid process.

The occurrence of metastases adhering to the jugular vein on the affected side indicates the typical Crile operation with resection of the internal jugular vein and the sternoclavicular muscle. If single, easily movable lymph nodes that are suspected of being metastatic but do not adhere to the internal jugular vein are discovered, the operation may be limited to the extensive removal of cellular tissue, fascia and lymph nodes along the vascular funicle without resecting the vein or muscle. In the first case (following Crile's operation of the affected side), operation of the second side is performed later, i.e., after 10-15 days; in the second case, both sides are operated on at the same time. Special emphasis should be placed on the necessity of the complete removal of lymph nodes and cellular tissue in the postmaxillary zone, around the mastoid process. The removal of all these formations is carried out with a single block. Individual ablation of palpable metastatic nodes leads only to irreparable damage, and is therefore definitely rejected.

Stage III

A. Treatment of Primary Focus

1. Tumors of the tongue that have progressed to its root and to the floor of the oral cavity, with mobility of the tongue retained, are treated by means of combined therapy, as in the first two stages of the disease.

2. Tumors that have limited the tongue's mobility because of spreading to the second half of the tongue and to the floor of the oral cavity, and with the occurrence of mobile regional metastases, indicate concurrent radiotherapy in the first stage, or telegamma-therapy alone, as described for preoperative radiation in the first and second stages of cancer. In these cases, the treatment of the primary focus is concluded not by semi-electroexcision of the tongue, which would be impracticable, but by the introduction of radium-bearing needles.

The introduction of needles into the residual tumor is conducted according to the general rules for interstitial radium therapy. The total dose is 4,000-5,000 r; strength of dose is 30-35 r/hr.

B. Treatment of Regional Metastases

Mobile metastases are treated by surgical means. The technique of operation is described in the section on the treatment of cancer in stage II.

Singular metastases with limited mobility are treated first by means of radiation; if the results are successful, this is followed by surgical operation (see plan of treating metastases of cancer of the lower lip in the third stage).

Stage IV

Radical therapy is not indicated; palliative radiation therapy may be applied.

Cancer of Root of Tongue

In view of the inoperability of cancer of the root of the tongue, the primary tumor is treated only by radiation.

Telegammatherapy is applied in the first stage. Total dose is 5,000-7,000 r; single dose is 200-300 r with two fields -- submaxillary-postmaxillary, from both sides. In view of the high radiosensitivity of cancer of the root of the tongue, it may also be effective to apply roentgentherapy with the regular apparatus under the following technical conditions: voltage 180-200 kv, focal distance of skin 30-40 cm; filter 0.5-1 mm Cu; total dose on the field 3,000-4,000 r; single dose 200 r; or daily dose on both fields 150 r on each field. If the tumor is accessible to radium therapy by way of the oral cavity, it is recommended that proximal-focus roentgentherapy of the tumor be applied in addition. Intraoral proximal-focus roentgentherapy is applied simultaneously with telegammatherapy from the first day (on the same day). The dosage and other conditions of radiation are presented in the plan of treatment of cancer in stage III.

If a residual tumor is found after telegammatherapy or radiation applied concurrently with proximal-focus roentgentherapy, needles are introduced according to the general method in the final stage of treatment. The dosage depends on the preceding treatment (gammatherapy and proximal-focus roentgentherapy).

The introduction of radium-bearing needles in the residual tumor may be carried out only when the entire tumor is accessible to the correct distribution of the needles.

Treatment of Metastases in Cancer of Root of Tongue

Surgical removal of the lymphatic apparatus in the neck is permissible only after ablation of the primary focus.

Plan of Treatment of Recurrent Tumors of Tongue

1. Accessible recurrent cancers following surgical therapy indicate combined therapy as in the second and third stages of the disease.

2. Recurrences following combined therapy may be treated by telegammatherapy if the altered tissues permit; the selection and number of fields of irradiation depends on the site of the tumor and the extent to which the malignant process has spread. Radiation is applied until the tolerance of the tissues has been exhausted -- 4,000-5,000 r on the average.

3. Operable recurrent cancers following radiation therapy indicate combined (surgical and radiation) therapy with preoperative irradiation. Average dose is 3,500-4,000 r as described in item 2.

4. The introduction of needles is contraindicated in recurrent cancer following radiation and combined therapy.

Plan of Treatment of Regional Recurrences (secondary metastases)

Treatment same as for regional recurrences of lower lip.

Plan of Treatment of Cancer of Oral Mucosa

1. Cancer of Mucosa of Floor of Oral Cavity

A. Treatment of Primary Focus

Radiation therapy indicated: (a) proximal-focus telegammatherapy. Field of irradiation depends on site of cancer -- submaxillary and chin. Single dose 250-300 r; total dose 4,000-6,000 r.

(b) Concurrent radiotherapy: telegammatherapy (see (a)) supplemented from the first day of treatment with simultaneous intraoral proximal-focus roentgentherapy. With the latter, it is best to use non-fixed fields of irradiation of varying form and size, with a focal distance 3-5 cm and total dose of 3,500-6,000 r.

A small residual tumor occurring after external irradiation or the concurrent application of external and intraoral irradiation may be treated by the introduction of radium-bearing needles or by electrocoagulation.

The introduction of needles is carried out according to the general method. The total dose depends on the dosage of the external or

concurrent radiotherapy -- 2,000-3,000 r on the average, with strength of dose, 30-40 r/hr. If proximal-focus roentgentherapy was not applied, the dose should be increased to 4,000-4,500 r.

B. Treatment of Regional Metastases

Regional metastases should be treated according to the instructions given in the section on the treatment of cancer of the tongue.

2. Cancer of Mucosa of Palate or Alveolar Processes of Upper Jaws

In the early stages of disease, without involvement of the bone, the indicated treatment is radiotherapy as for cancer of the mucosa of the floor of the oral cavity ((a) and (b)).

Tumors that involve adjacent bone in a small, limited area indicate combined therapy.

Telegammatherapy with 1-2 fields, depending on the site of the tumor; total dose 4,000-6,000 r; if accessible, simultaneous proximal-focus roentgentherapy as for cancer of oral cavity. The final stage of treatment consists of electrosurgical operation.

3. Cancer of Alveolar Process of Lower Jaw

Malignancy of the alveolar process of the lower jaw is treated by the combined method: proximal-focus telegammatherapy applied concurrently with proximal-focus roentgentherapy, with subsequent electrocoagulation or resection of the jaw.

4. Cancer of Buccal Mucosa

Extensive tumors of the buccal mucosa indicate combined therapy. Following preoperative radiation, as described for cancer of the mucosa of the floor of the mouth in (a) and (b), the malignancy is subjected to electrocoagulation with the destruction of all the buccal layers, including the skin.

Plastic closure of the defect is performed not earlier than 8-12 months after operation.

Extensive tumors of the buccal mucosa, located in the region of the posterior buccal pocket, with the occurrence of trismus, are treated symptomatically; radiotherapy is applied in individual cases.

Metastases are treated according to the method described above.

CANCER OF UPPER JAW

Classification

Stage I. Tumor bordered by the maxillary sinus (antrum of Highmore) without degeneration of its bony walls. No metastases in lymph nodes.

Stage II. Tumor progresses to bony walls of maxillary sinus, causing their focal degeneration, but not progressing beyond the sinus without clinically revealed metastases.

Stage III. (a) Tumor of maxillary sinus progresses beyong its bony walls and penetrates oral cavity, nose or ethmoid labyrinth, eye-socket, pterygopalatine fossa.

(b) Tumor smaller in size, but with occurrence of metastases in regional lymph nodes (postpharyngeal, submaxillary and cervical).

Stage IV. (a) Tumor spreads far beyond the limits of the maxillary sinus, developing or ulcerating on the facial skin, progresses to molar bone and the second jaw, growing into the nasal cavity, orbit, or pterygopalatine fossa. Markedly immobile, sometimes degenerating metastases in lymph nodes of submaxillary region and neck.

(b) Tumor of smaller size with immobile regional or remote metastases.

Currently, the most rational and effective method of treatment of malignant tumors of the upper jaw is the combined method. It includes: (1) preoperative radiotherapy; (2) surgical (preferably electrosurgical) resection of affected jaw with insertion into the wound of radium preparations and a temporary prosthesis to separate the operative area from the oral cavity; (3) metastases in regional lymph nodes are treated by extensive surgical removal of lymph nodes in submaxillary area and neck.

It is essential that required medical care of the oral cavity be carried out prior to therapy. Bilateral ligation of the external carotid arteries 2-3 days before radiotherapy may be recommended to increase the effectiveness of preoperative radiotherapy.

The purpose of preoperative radiation is to inhibit the proliferation and growth of the cancerous elements, and to decrease the size of the tumor itself; this facilitates subsequent surgical operation and reduces to a minimum the danger of dispersion of active cancerous elements around the wound during operation.

The first stage of treatment is identical for stages I, II and III of cancer of the upper jaw.

Preoperative radiotherapy is carried out mainly by means of telegammatherapy; roentgentherapy may be applied in individual cases only if a telegamma-ray apparatus is not available.

Telegammatherapy is usually applied with two fields -- frontal and external-lateral; 1-2 fields are irradiated daily. Single dose is 250-300 r; total dose is 3,000-5,000 r on each field.

Roentgentherapy is applied by fractional radiation under the following technical conditions: voltage 180-200 kv; filter 1-2 mm Cu and 1 mm Al; focal distance of skin 40-50 cm. The number, sizes and location of the fields depend on the site and extensiveness of the tumor; 1-2 fields irradiated daily. Single dose 200-250 r; total dose on each field 2,000-2,500 r.

The second stage of treatment is identical for stages I, II and III of disease.

After the reactive symptoms of the skin and the radium-epithelitis have subsided, approximately 3-5 weeks later, the second stage of treatment of the primary focus should follow -- surgical resection of the jaw, preferably electrosurgical.

In the early stages (I and II), if the boney walls of the maxillary sinus are intact and if an electrosurgical apparatus is not available, it is permissible to perform a resection by the usual surgical method, but radium preparations should be placed in the surgical wound following the operation.

Prior to performing radical surgical operation of the jaw, it is necessary to prepare a temporary palatal prosthetic device from plastic material.

The resection of the jaw should be complete, with removal of the walls of the maxillary sinus and nasal conchae; if the cancer spreads to the ethmoid labyrinth, the removal of the cells of the ethmoid labyrinth is obligatory.

Only in cancer of the hard palate or alveolar process may treatment be limited to the partial removal of the diseases portions of the upper jaw.

Electrosurgical resection of the jaw is performed in the following way: regional anesthesia with 10 ml of 2% novocain in the region

of the pterygopalatine fossa beneath the lower rim of the zygomatic bone, with additional infiltration anesthesia with a 0.5% solution of novocain along the line of dissection of the tissues; 5% novocain solution is applied to the nasal mucosa.

If resection is performed by ordinary surgical means, intratracheal narcosis with a mixture of ether and oxygen may also be used. It should not be used in electrosurgical operations of the jaw because of the danger of explosion.

To increase the scope of radical surgery the operation is performed with extensive exposure of the jaw by cutting the skin on the side of the nose and dissecting the upper lip along the corresponding torus. Incisions under the eye across the cheek (Weber, Dieffenbach) should be avoided because of the possibility of separation of the sutures in this area of the wound.

The incision on the face is made with a scalpel, and the flap is dissected from the bone with an electric knife. Then a coagulated ridge is formed by needle-shaped electrodes inserted up to the bone lengthwise along the central line of the hard palate and transversely along its border with the soft palate on the diseased side. A strong electric current is not used in order to avoid sparks; otherwise, the needle will be covered with coagulated tissues, which will prevent the passage of the current. The mucous membrane of the hard palate is dissected to the bone along the ridge formed with the electric knife and the rim of the ablated area is coagulated, after which it (the rim) is trimmed with a raspatory. Four narrow gauze strips, moistened with physiological or novocain solution, are placed in the formed groove through which the bone, like the soft tissues, is coagulated with small, spherical electrodes. Humectation is necessary for the heat to penetrate the bone; otherwise, only its surface is diathermized.

The anterior wall of the maxillary sinus is coagulated in this manner, but with disc-shaped electrodes. Part of the bone is chipped away with a chisel and the opening of the sinus is widened with nippers. The exposed tumor is coagulated with a disc-shaped or, preferably, a fork-shaped electrode which may be constructed from an ordinary table fork. The entire tumor is generally removed by means of stage coagulation to a depth of 1-2 cm and scooping out the burned tissue with an electric snare, sharp scoop or excising it with an electric knife, without danger of resulting ophthalmitis or thrombosis of the cavernous sinus from overheating. The tissue should be scooped out carefully to avoid bleeding. If necessary, to avoid persistent bleeding following biopsy, even with electroexcision, it is recommended that preliminary acupressure be applied in the form of a cone with an acicular electrode to the lobule of the tumor to be excised prior to ablation.

After the coagulated tumor is entirely removed, the remaining walls of the maxillary sinus are coagulated and removed with a chisel and forceps, including the diseases part of the hard palate.

A biactive-bipolar method of coagulation may also be used to diathermize diseased tissues.

After removing the diseased sections, as described above, coagulating the mucous membrane of the hard palate parallel with the middle line and dissecting it along the coagulated strip, the cable leading to the passive electrode is disconnected from the apparatus and another cable is connected in its place, also supplied with a handle with a disc-like electrode. Both active electrodes are placed on opposite sections of the alveolar process to coagulate it, gradually shifting the electrodes along the process. The coagulated areas are removed with an electric snare and nippers to the layer in which bleeding occurs. Placing one electrode on the anterior region of the jaw and the other on the hard palate, the area between the electrodes is coagulated. A frontal opening is made in the maxillary sinus with a chisel and, spreading it apart with nippers, one of the electrodes is placed on the floor of the sinus opposite the electrode situated on the palate. The coagulated soft tissues are removed with an electric snare, and the boney parts with a chisel and nippers. Having placed the electrodes some distance apart (to avoid contact, since a short circuit may burn out the bulb in the apparatus) on the external wall of the nasal cavity on the side of the maxillary sinus, the wall and concha are diathermized and then excised with any instrument -- preferably an electric knife.

Later they proceed identically with both methods.

It should be mentioned that extremely deep coagulation of the upper wall (the floor of the eyesocket) may produce complications involving the eye, i.e., edema of the cellular tissue with compression of the optic nerve, neuritis and necrosis of the eyeball. When necessary, surgical treatment extends to the ethmoid labyrinth, the eyesocket, the sphenoid sinus and the lateral wall of the pharynx, where the principal lymphatic hilus of the upper jaw is located.

Coagulation of the median and upper nasal conchae and the ethmoid labyrinth is the most difficult part of the operation. It must be performed slowly and carefully, since excessive diathermy may produce necrosis of the roof of the nasal cavity (the perforated cribriform plate) with subsequent meningitis, brain abscess, etc. The diathermized portion of the labyrinth is removed with a very sharp, small turbinotome or a very sharp scoop to avoid tissue damage.

The considerable bleeding from the internal maxillary artery that always occurs after removal of the coagulated posterior wall of the jaw with forceps is stopped by clamping and ligation, if possible, by suturing or even passing a coagulating current through the clamp, avoiding charring of the stump of the blood vessel.

The operation is concluded with supplementary superficial coagulation of the entire operative area, and only 1-2 sutures are applied between the posterior edge of the incision of the buccal mucosa and the soft palate. Gauze pads, 1.5-2 cm in width, are then placed in the surgical wound; they are arranged in the form of a harmonica, at least 0.75-1 cm in thickness (after firm manual compression).

The gauze pads protect the eyeball and nasal septum from an excessive effect of the rays from the radioactive preparations that are inserted in the surgical wound.

In the inferoposterior section of the operative wound, 2-3-4 radioactive preparations from 10 to 15 mg each, with a filter equivalent to at least 0.5 mm Pt are introduced into the areas where recurrence of cancer and metastases occur most often (pterygopalatine fossa and lateral wall of the pharynx). The preparations are arranged only vertically, and are separated by pads; the distance from the walls of the surgical wound is 0.75-1 cm.

The radioactive preparations remain for 20-48 hours; strength of dosage 25-35 r/hr; total dose 2,500-3,000 r.

With tumors that are bordered only by the hard palate or alveolar process, it is possible not to use an external incision, but to operate through the mouth. If the hard palate is diseased, it is outlined with a coagulated ridge to its border with the alveolar process, coagulated and chipped off with a chisel or chipped off with nippers. If the cancer has spread to the nasal cavity, the mucous membrane of the posterior nares must also be removed, often with the inferior nasal concha.

Median location of the ulcer necessitates coagulation and resection of the posterior portion of the nasal septum.

When the disease is localized on the alveolar process, the latter is coagulated from both the lingual and buccal surfaces. The teeth that border the resection of the process are extracted, their sockets are coagulated with spherical electrodes and packed with a moist gauze strip. Following coagulation, the alveolar process is chipped off with a chisel or removed with nippers. The biactive-bipolar method is especially convenient here.

In restoring the face, the edge of the dissected skin flap must be sutured through its entire thickness to ensure wide apposition of the edges of the incision.

The defect in the palate is packed for two days or a maximum of five days; the packing is not removed earlier in order to avoid bleeding. The operation is concluded by inserting a temporary prosthetic obturator, prepared prior to the operation. Iodoform need not be used, since it produces secondary radiation in the presence of radium, and causes burns. It should be remembered that in the postoperative period there is usually, and not infrequently, a prolonged (sometimes up to two weeks) increase in temperature to 38.9-39°, with headache. After the gauze pads have been removed, the wound should be treated without packing, if possible, with irrigations of deodorizing solutions and daily application of a strong solution of potassium permanganate to the wound. The defect in the palate remains open, permitting observation of correct granulation of the wound. Any recurrences should be promptly coagulated. In suspicious cases, a biopsy should be performed.

The disengagement of necrotic soft tissues from the walls of the wound is a slow process, requiring 4-5 weeks. Sequestration of sections of coagulated osteal walls usually occurs in approximately two months. Necrotic tissues should not be removed with energetic manipulations, pincers, forceps or scissors. Only the loose, hanging pieces may be removed; otherwise, hemorrhage and the opening of the vascular and lymphatic network occur, facilitating the penetration of infection.

In stage III, a different method of operation is ineffective.

In stage IV (inoperable tumor), if the patient's general condition permits, the indicated treatment is palliative gammatherapy with preliminary ligation of the external carotid arteries.

Plan of Treatment of Recurrent Cancer

Localization of the recurrent cancer on the posterior wall of the operative cavity indicates telegammatherapy of the pterygopalatine fossa applied concurrently with intracavitary gammatherapy. The technique of gamma-ray irradiation is described above. In intracavitary gammatherapy, 2-3 radioactive preparations, each having the equivalent of 10-15 mg and a filter of 0.5-1 mm Pt, are introduced into the cavity at the site of recurrent cancer, spaced 0.5-1 cm apart, and are kept in place by gauze pads and prosthesis. The preparations should be placed only vertically, and the same conditions should be observed as in intracavitary postoperative placement of radioactive preparations. Total dose 3,000-4,000 r; strength of dose 25-35 r/hr.

Electrosurgical ablation or coagulation of the tumor may be recommended for a small recurrent tumor on the posterior wall of the cavity, or in cases where the tumor has not been successfully removed, by radiation therapy.

Recurrent cancer localized in the eyesocket is treated by means of telegammatherapy and intracavitary gammatherapy, which should be spaced. The radioactive substances should be placed at least 0.75-1 cm from the osteal walls. The total dose should not exceed 1,000-1,500 r.

If the recurrent tumor develops in the ethmoid labyrinth, and if it has not spread to the cranial cavity, only telegammatherapy may be applied.

The total dose should not be large -- 4,000-4,500 r for two fields -- in view of the possible involvement of the eyeball, particularly with repeated irradiation.

CANCER OF LARYNX

Classification

The larynx is divided into three principal parts:

(1) the upper or vestibular section, encompassing the aryepiglottic folds with the laryngeal aspect, the false vocal folds, the ventricle of Morgagni and the epiglottis;

(2) the median section -- region of true vocal folds;

(3) the lower or subligamentous section.

Stage I. Tumor or ulcer, circumscribed by mucous membrane and a submucous layer, does not progress beyond the borders of one section of the larynx.

Stage II. Tumor or ulcer, also circumscribed by mucous membrane and submucous layer, occupies entire area of one section of the larynx, but does not spread beyond its borders. Mobility of larynx retained. No metastases in regional zones.

Stage III. (a) Tumor progresses to underlying tissue, causing immobility of corresponding half of larynx, but does not spread beyond the borders of any one of its sections.

(b) Tumor spreads to adjacent sections of larynx. Single or multiple mobile regional metastases or a single metastasis with limited mobility occur.

Stage IV. (a) Expansive tumor occupying greater part of larynx and infiltrating underlying tissues.

(b) Tumor progressing to neighboring organs.

(c) Immobile metastases in cervical lymph nodes.

(d) Tumor of any size, with remote metastases.

Plan of Treatment of Cancer of Larynx According to Site and Stage of Disease

Cancer of Upper or Vestibular Section of Larynx

Current methods of treatment

(a) Radiotherapy: roentgentherapy or telegammatherapy.

(b) Combined therapy: preoperative roentgentherapy or telegammatherapy followed by laryngectomy.

Stage I

Radiotherapy. Roentgentherapy. Carried out by the methods of simple fractionation or fractional extension. Technical conditions: voltage 180-200 kv, focal distance of skin 40-60 cm; filter 0.5-1 mm Cu and 1 mm Al. Radiation is applied from three fields: two lateral and one frontal.

Borders of the fields of irradiation in cancer of the vestibule of the larynx: upper border of the lateral field crosses 1-1.5 cm above the rim of the lower jaw; the lower border -- along the lower rim of the cricoid cartilage; the posterior -- along the anterior rim of the sternocleidomastoid muscle; the anterior -- calculated so that the anterior field was located between the two lateral fields. Size of lateral fields of radiation, 6 x 8 cm; anterior 5 x 3 cm.

One field is irradiated daily. The single dose is 200 r. With the method of fractional radiation the field of exposure may be diminished with simultaneous increase of the single dose to 300 r. The total dose for all the fields is 6,000-9,000 r.

Telegammatherapy. Applied mainly with proximal-focus apparatus. Irradiation is applied with three fields, as in roentgentherapy. One field is irradiated daily. The single dose is 250-300 r. The total dose for all fields is 6,000-8,000 r.

If radiotherapy proves unsuccessful, a laryngectomy is performed approximately 1-1 1/2 months after termination of treatment.

Stages II and III

Treatment is chiefly combined. Radiotherapy is applied as in stage I. If there are enlarged lymph nodes in the neck which do not enter the zone of irradiation of the larynx, additional fields are used. The total dose on these fields is 2,000-3,000 r.

1-1 1/2 months after termination of radiotherapy, with the presence of a remnant of cancer in the larynx, surgical intervention is applied and the larynx is excised.

Metastases in the regional lymph nodes of the neck are subject to extensive surgical removal.

Cancer of Median Section of Larynx

Current methods of treatment

(a) Radiation: roentgentherapy or telegammatherapy.

(b) Surgical: partial resection of the larynx, total laryngectomy.

Stage I

(a) Radiotherapy. Roentgentherapy or telegammatherapy is carried out as for tumors of the upper section of the larynx, but the upper border of the field of exposure extends at a lower level, along the rim of the lower jaw. If the tumor is situated in the middle third of the true vocal folds, radiation may only be applied with two lateral fields.

Besides the fractional and fractional-extended methods of roentgentherapy of cancer of the true vocal folds and of the circumscribed cancer of the false vocal folds or laryngeal ventricle, it is possible to use the method of fractional intensive radiation, consisting of roentgentherapy with a daily increase in dosage and reduction of the field every 2-3 days (see plan of treatment). Technical conditions: voltage 180-200 kv; focal distance of skin 60 cm; filter 1 mm Cu and 1 mm Al; strength of dose 6-7 r/min.

(b) Surgical therapy. (1) Partial resection of the larynx is permissible when the tumor is located on the free edge of the vocal fold and does not extend to the vocal process or to the anterior commissure. (2) Laryngectomy.

Plan of Treatment of Laryngeal Cancer with the Fractional-Intensive Method

Day of Treatment	Size of Field, cm	Single Dose on the Field Alone, r	Daily Dose, r
1st	6 x 8	85	170
2nd	6 x 8	95	190
3rd	6 x 7	105	210
4th	6 x 7	115	230
5th	5 x 7	125	250
6th	5 x 7	135	270
7th	5 x 6	150	300
8th	5 x 6	165	330
9th	4 x 6	180	360
10th	4 x 6	195	390
11th	4 x 5	205	410
12th	4 x 5	215	430
13th	4 x 5	225	450
14th	4 x 4	235	470
15th	4 x 4	245	490
16th	4 x 4	255	510
17th	4 x 3	265	530
18th	4 x 3	275	550
		Total dose	6,540

Stage II

Radiotherapy: roentgentherapy or telegammatherapy, conducted as in stage I.

Remnants of cancerous tissue after radiation therapy has been carried out indicate surgical intervention -- laryngectomy. Only in individual cases is partial resection of the larynx permissible.

Stage III

(a) Radiotherapy: as in stages I and II of cancer of true vocal folds.

(b) Combined therapy: preoperative radiotherapy followed by total laryngectomy, or total laryngectomy followed by roentgen- or telegammatherapy.

Preoperative radiotherapy as described for stages I and II. About 1 1/2 months after the termination of radiotherapy, any remnants of cancer are eliminated by laryngectomy. The preferable first alternative -- preoperative radiation.

Postoperative radiotherapy is applied 10-15 days after operation.

Postoperative roentgentherapy is carried out by fractional irradiation of both lateral fields close to the median line. Size of the field 8 x 10 cm. Conditions of irradiation: voltage 180-200 kv; filter, 1 mm Cu and 1 mm Al; focal distance of skin, 40 cm; daily dose, 200 r; total dose, 1,500-2,000 r on the field.

Telegammatherapy is conducted with the same fields as in roentgentherapy. Single dose, 200-250 r; total dose, 3,000-3,500 r.

Cancer of Lower (Subligamentous) Section of Larynx

Combined therapy is used chiefly. In stages I and II, partial resection of the larynx is permissible; in stage III, total laryngectomy with subsequent radiation therapy.

Technique of irradiation described above.

Stage IV

Radical therapy -- surgical and radiation -- is not indicated.

Recurrent Cancer of Larynx

1. Recurrent cancer of the larynx, occurring after radiation therapy, indicates total laryngectomy.

2. Recurrent cancers, occurring after partial resection of the larynx, indicate combined therapy -- radiation therapy followed by laryngectomy, as in stage III.

3. Recurrent tumors of the larynx that develop after combined therapy indicate symptomatic treatment; only in individual cases is radiation therapy possible.

The treatment of metastases in the lymph nodes of the neck after removal of the initial focus is carried out as for regional metastases of oral cancer.

CANCER OF BRONCHI AND LUNGS

Classification

Stage I. Small circumscribed tumor in large bronchus of endo- or peribronchial form of growth, and small tumors in the small bronchi and bronchioles that does not spread to the pleura. No intergrowth in the pleura and no metastasis.

Stage II. Same type tumor as in stage I, or larger in size, but without intergrowth in the pleural layers in the presence of single metastases in the closest regional lymph nodes.

Stage III. Tumor progressing beyond lung and developing in one of the neighboring organs: pericardium, mediastinum, thoracic wall or diaphragm, with multiple metastases in regional lymph nodes.

Stage IV. Tumors in lungs, spreading extensively on thoracic wall, mediastinum and diaphragm, with dissemination along pleura and extensive regional metastases or remote metastases.

Current Methods of Treatment

(1) Surgical therapy: pneumonectomy or lobectomy.

(2) Radiation therapy: roentgen- or telegammatherapy.

(3) Combined therapy: radical surgery followed by radiation therapy.

Treatment According to Stages of Disease

Stages I and II

(1) Surgical therapy: pneumonectomy; lobectomy admissible in certain cases.

(2) Radiation therapy: roentgen- or telegammatherapy.

(3) Combined therapy.

In principle, roentgentherapy is cross irradiation using many fields. It is applied by (a) Dillon's method (Figure 1) and (b) the method of multifield cross irradiation with larger fields arranged in one row.

Rotation therapy is applied if the corresponding apparatus is available.

(a) Dillon's method: radiation is applied with semicircular arrangement of fields in 3 rows around half of the thoracic cavity on the affected side. The middle row of fields is level with the tumor. The fields are 4 x 4 cm in size; the spaces between the rows and fields are 1 cm. Total number of fields, 20-25. Single dose is 500-600 r. Two or three fields are irradiated daily so that the depth of the tumor receives 150-200 r daily. Total dose reaching the tumor's depth from all fields is 6,000-8,000 r in 6-7 weeks.

(b) Fractional multi-field roentgen radiation. The dermal fields are 6 x 8 or 8 x 10 cm in size, depending on the size of the tumors; on the diseases side they are arranged in a circle in one row, and two fields are located on the opposite side with centration on the mediastinum. The total number of fields depends on the size of the patient's thoracic cavity and the level of the tumor. Conditions of radiation: voltage, 180-200 kv; filter, 1 mm Cu and 1 mm Al; focal distance of skin, 40-50 cm; single dose, 400 r; total dose on each field, 2,400-2,500 r; total dose on focus, 6,000-8,000 r; 1-2 fields irradiated daily.

Telegammatherapy is applied with telegamma-ray apparatus. Focal distance of skin, 35-60 cm. Sizes of fields, 6 x 8 or 8 x 10 cm. The fields are arranged as in roentgentherapy. Total dose, 6,000-8,000 r.

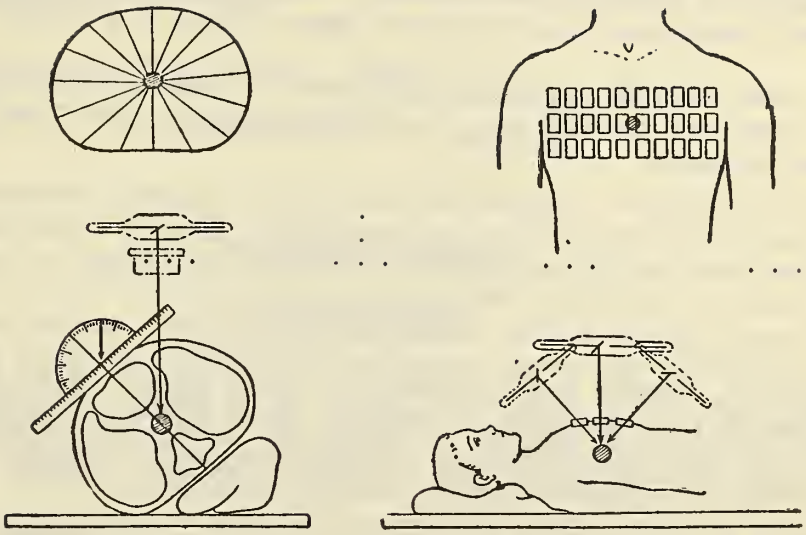

Figure 1. Roentgentherapy of cancer of lung by Dillon's method

Combined therapy: radical surgery followed by radiation.

Postoperative radiation therapy: roentgen- or telegammatherapy.

Roentgentherapy is applied under the conditions described above, with four fields 10 x 15 cm in size -- two on the affected side, with centration on the mediastinum. One field is irradiated daily; single dose, 400 r; total dose for each field, 2,000 r.

Telegammatherapy is conducted with the same fields as in roentgentherapy: size of fields, 8 x 10 cm; total dose for each field, 3,000-3,500 r.

Stage III

Radiation therapy used chiefly: roentgen- or telegammatherapy. Technical conditions are described under stages I and II.

In case radical surgical operation is possible after radiation therapy has been carried out, it is performed as the final stage of combined therapy.

MAMMARY CARCINOMA

Classification

Stage I. Small tumor (largest is less than 3 cm in diameter) occurring in the thickness of mammary gland without progressing to surrounding cellular tissue or integument and with no histologically established involvement of the regional lymphatic system.

Stage II. (a) Tumor does not exceed 5 cm in diameter, progresses from mammary tissue to cellular tissue with symptoms of adhesion to the skin (wrinkling), but with no involvement of the lymphatic system.

(b) Tumors of same size and form or smaller sizes, but with involvement of single axillary lymph nodes of the first stage (etapa).

Stage III. (a) Tumors exceeding 5 cm in diameter, with intergrowth or ulceration of cutaneous integument or penetrating into the adjacent fascial-muscle layers, but without regional metastases.

(b) Tumors of any size with multiple axillary or subclavian and subscapular metastases.

(c) Tumors of any size, with metastases in the subclavian lymph nodes or with marked parasternal metastases.

Stage IV. Widespread involvement of mammary gland with dissemination in the skin or extensive ulceration. Tumors of any size, firmly fixed to thoracic wall, with or without metastases in regional lymph nodes. Tumors of mammary gland with remote metastases.

Methods of Treatment of Mammary Carcinoma

The best method of treatment is combined therapy: radical operation and radiation therapy. Treatment is carried out in three principal stages:

1. Preoperative radiation therapy (except for cancer in stage I).

2. Radical mastectomy.

3. Postoperative radiation therapy.

First Stage of Treatment

Preoperative roentgen- or telegammatherapy. The zone of preoperative irradiation should include not only the breast but also the lymph sinuses -- axillary, subclavian, supraclavicular and parasternal regions (Figure 2). The breast is irradiated with two fields with the border of the internal field in the middle of the sternum, and the external field along the posterior axillary line. The axillary region is irradiated from two or three fields (directly on the axillary recess and issuing extremity, the anterior and posterior fields). The supraclavicular and subclavian regions are irradiated from one or two fields. For maximal absorption of radiant energy in the diseased organ and minimal irradiation of lung tissue, the beams of rays are directed so as to touch upon the thoracic wall. For those same considerations, a beam of rays is directed on the subclavian field tapered outward. Irradiation of the mammary gland is begun. Preoperative radiation therapy is applied intensively in condensed periods (3-4 weeks) to avoid a long delay of surgical operation. If the tumor is localized in the superior-interior quadrant, supplementary radiation is applied to the parasternal field. In view of the possibility of the cancerous process spreading to the cutaneous lymph sinuses, the borders of the fields on the irradiated side should touch each other.

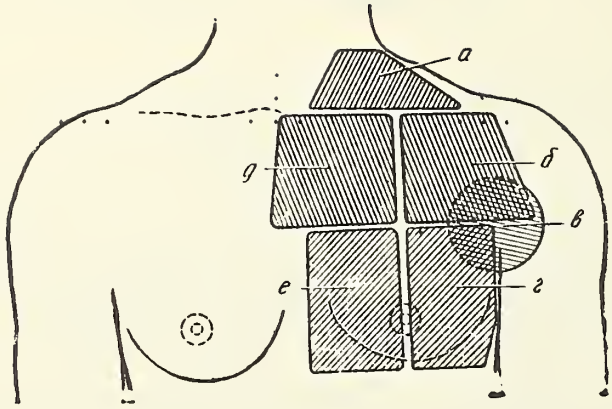

Figure 2. Plan of fields of irradiation in mammary carcinoma (State Oncological Institute imeni P. A. Gertsen, Roentgentherapeutic Division)

(а) supraclavicular field; (б) anterior axillary field; (в) axillary field; (г) external field on mammary gland; (д) sternal region; (е) internal field in mammary gland

Second Stage of Treatment

Radical surgical operation: removal of entire breast with its integument, fascia, the major and minor pectoral muscles and all the cellular tissue with the lymph nodes and lymph sinuses in the subclavian-axillary-subscapular region. This operation is performed regardless of the results of preoperative radiation therapy; it is performed after the reactive symptoms of the skin have subsided (2-3 weeks after the termination of radiation therapy).

Third Stage of Treatment

Postoperative radiation therapy: applied 10-15 days following operation, if there are no local or general contraindications, according to the same plan as the preoperative, figured on the basis of one course. This plan varies somewhat in different stages of disease.

In stage I of mammary carcinoma, treatment may be limited to radical surgical operation without preoperative radiation therapy. Small tumors suspected of being malignant indicate preliminary biopsy (excision of tumor with surrounding tissues) with immediate histological examination, under conditions in which it would be possible to perform radical surgical operation without delay. Postoperative radiation therapy should be applied in stage I, particularly for young female patients and for rapidly growing tumors.

The areas that are subject to radiation include the supraclavicular and subclavian regions from one or 2 fields, the axillary region from one or two fields, the region of the sternum and the operative area from two fields (from middle of sternum to posterior axillary line). Single dose on the field is 200-250 r. Two fields are irradiated daily. Total dose on each field is 1,500-2,000 r during roentgentherapy and 2,500-3,000 r during telegammatherapy. Technical conditions in roentgentherapy: voltage, 180-200 kv, filter, 0.5 mm Cu and 1 mm Al; focal distance of skin, 40-50 cm.

In stage II, radical surgery with preoperative and postoperative radiation therapy is indicated. Preoperative radiation is applied from 5-6 fields: 2-3 fields on the breast, one axillary, supraclavicular, subclavian and parasternal field. Single dose on the field in roentgentherapy, 250 r; in telegammatherapy, 200-300 r. Total dose on each field in roentgentherapy, 2,000-2,500 r; in telegammatherapy, 2,500-3,000 r. Two fields are irradiated daily. Technical conditions are the same as in stage I with postoperative roentgentherapy.

Radical surgical operation should be performed in the periods indicated above regardless of the results of preoperative radiation therapy, even with the complete disappearance of the tumor. Postoperative radiation therapy is applied according to the same plan, each field receiving a total dose of 1,500-2,000 r.

In stage III, treatment begins with preoperative radiation therapy according to the same plan and under the same conditions as in stage II. Each field on the mammary gland receives a total dose of 2,000-3,000 r; the other fields receive 1,500-2,000 r with roentgentherapy. With telegammatherapy, the total dose on each field is 3,000-4,000 r.

The preferred method of radical surgery is electrosurgical. Postoperative radiation therapy is applied by the plan used in stage II. If the patient is unable to abduct her arm after the operation, radiation is applied from the anterior and posterior fields. If the original tumor is localized in the internal half of the breast, supplementary radiation is applied to the opposite axillary field and sternal region. With a rapidly growing tumor and with a widespread cancerous process in women with retained ovarian function or who have recently entered into menopause, ovarian function is stopped by irradiation of four pelvic fields (two iliac and two sacral, each field 10 x 15 cm in size) with 1,000 r per field in two applications. In the given group of patients, supplementary irradiation of the hypophysis is not recommended. It is substituted with the systematic introduction of androgens, 50 mg three times a week or 25 mg daily. The total dose of hormones must reach 5-6 g in the form of injections of testosterone-propionate or internal administration of methyltestosterone.

Proximal-focus telegammatherapy with a dose of 4,000-5,000 r is supplemented to the above-described plan for small single supraclavicular and opposite axillary metastases.

In stage IV, the original tumor and metastases are given palliative therapy, principally radiation and hormone. The breast is removed only if dissolution of the tumor and hemorrhage are threatened. With multiple metastases and the preclimacteric period, the indicated treatment is the termination of ovarian function by irradiating the ovaries or administering large doses of methyltestosterone internally -- up to 15 g (50-100 mg two to three times a week).

Sometimes, it may be effective to apply roentgentherapy by the method of general irradiation of the upper and lower half of the body with a single dose of 15-25 r and a total dose of no more than 300-500 r.

Single recurrent growths are treated by electrosurgical operation, either interstitial radium therapy or roentgentherapy.

Dissemination on the skin near the cicatrix is treated by tangential roentgentherapy with counter beams of rays from two large fields, with a single dose of 150 r per field daily and a total dose of up to 3,000 r on both fields.

CANCER OF ESOPHAGUS

Classification

Stage I. Small, clearly defined tumor or ulcer of esophagus, localized in the thickness of the mucous membrane and submucous layer. Patency of esophagus disturbed only slightly. No metastases in lymph nodes.

Stage II. Tumor or ulcer, causing marked constriction of the lumen of esophagus, but not growing into the esophageal wall in the presence of single-regional metastases.

Stage III. Large tumor or ulcer, occupying large area of periphery of esophagus, and constricting or enlarging its lumen to the point of nearly complete obstruction.

Tumor assumes any size, growing into wall of esophagus and attaching itself to neighboring organs and tissues. Metastases in regional lymph nodes.

Stage IV. Tumor has progressed far beyond the organ's boundary or has caused perforation in one of the neighboring lumina with formation of fistula. Immobile metastases in regional lymph nodes and in remote organs.

Current Methods of Treatment

1. Surgical.

2. Radiation: (a) roentgentherapy; (b) telegammatherapy.

Plan of Treatment of Esophageal Cancer (according to stages of disease)

Stages I and II

If the cancer is localized in the lower third of the esophagus, the indicated treatment is radical surgery (resection). If the middle and upper third of the organ are involved, both surgical and radiation therapy are employed.

Radiation Therapy

In principle, roentgentherapy of esophageal cancer consists of multi-field cross irradiation. It is applied by Dillon's method, the method of long, narrow fields and irradiation from a lead grid. Rotation therapy is applied if the corresponding apparatus is available.

1. Dillon's method (roentgentherapy with many small fields).

A large number of small fields (Figure 3) are used, located concentrically in relation to the tumor and in a circle around the entire thoracic cavity. The latter is irradiated by three rows of fields, each being 5 x 3 cm in size. The number of fields in each row depends on the size of the thorax. The laying out of the fields is done under the control of the X-ray screen. The middle row of fields is irradiated first, then the upper and the lower. Each field is exposed three times, to doses of 800, 600 and 600 r in one treatment. In the first turn, two fields are irradiated with 800 r; in the second and third, three fields are exposed to 600 r. Conditions of radiation: voltage, 180-200 kv; filter, 0.5-1 mm Cu and 1 mm Al; focal distance of skin, 30-40 cm.

The described method is recommended when the tumor is located in the middle third of the esophagus.

2. Multi-field method of radiation with long, narrow fields: long, narrow fields, 3 x 14 cm in size, arranged in a single circular row around the entire thorax. The center of the field coincides with the center of the tumor. The number of fields depends on the size of the thorax.

Two fields are exposed daily to 700-800 r each. The total dose per field amounts to 2,000-2,400 r. Conditions of radiation: 180-200 kv; filter, 1 mm Cu and 1 mm Al; focal distance of skin, 40-50 cm.

3. Radiation with lead grid: the technical conditions are the same as in the two preceding methods described above. Radiation is applied through a lead grid which is placed on the skin on the irradiated field. The grid is 4-8 mm in thickness; the performations, up to 1 cm in diameter. The closed and open perforations of the grid are distributed in a ratio of 1:1. The single dose is 400-500 r. The total dose on each of the two fields, up to 10,000-12,000 r.

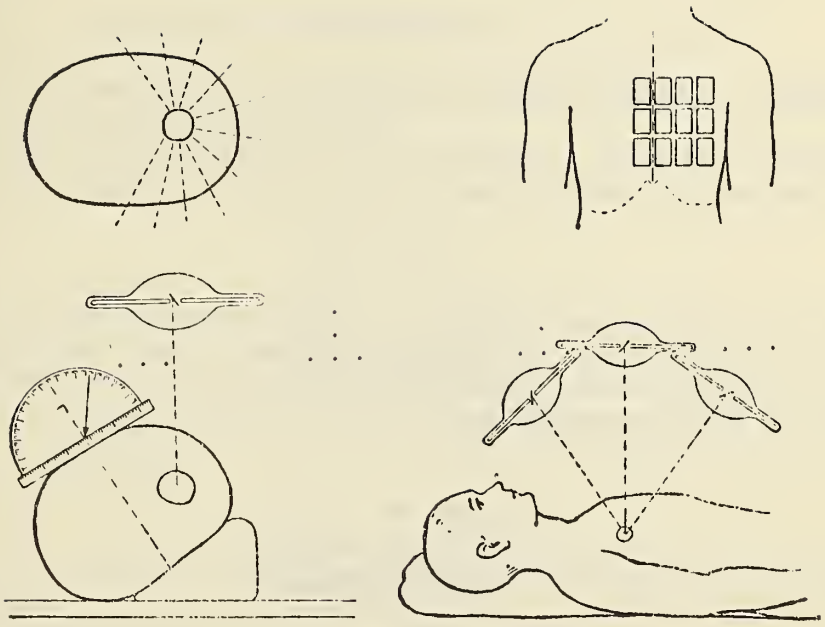

Figure 3. Roentgentherapy of tumor of esophagus by Dillon's method

Telegammatherapy

This therapy is applied by the method of multi-field irradiation. The fields are 6 x 8, 8 x 10 cm in size and from four to 10 in number. Technical conditions: GUT-Co-400 apparatus; focal distance of skin, 35-60 cm; single dose on each field, 250-300 r; total dose on each field (depending on the number of fields), from 2,000-3,500 r.

In all cases where surgical operation is limited to test thoracotomy, radiation therapy is applied 10-20 days after the operation if the patient's general condition is satisfactory. The method of radiation is the same as in stages I and II.

Stage III

Surgical therapy: radical operation not indicated.

Radiation therapy: roentgen- and telegammatherapy are applied by the same method used in stages I and II.

Stage IV

Radical surgical and radiation therapy are not used. With increasing symptoms of constriction of the esophagus, certain cases indicate the establishment of a gastric fistula, indirect anastomosis and other palliative operations.

CANCER OF STOMACH

Classification

Stage I. Small, clearly defined tumor located in the thickness of the mucous membrane and submucous layer of stomach. No regional metastases.

Stage II. Tumor growing into muscle layers of stomach but not penetrating its serous coat and not adhering to neighboring organs. Stomach retains its mobility. Single mobile metastases in nearest regional zones.

Stage III. Tumor of considerable size progressing beyond gastric wall, attached to and growing into neighboring organs; sharp restriction of stomach's mobility. The same type tumor or smaller tumor with multiple regional metastases.

Stage IV. Tumor may grow to any size and may assume any characteristics, with remote metastases.

Tumors of Cardia of Stomach

Stage I. Small tumor in subcardiac zone of stomach without crossing to abdominal segment of esophagus. No regional metastases.

Stage II. Tumor in cardia of stomach progressing to abdominal segment of esophagus, but not to neighboring organs.

Stage III. Tumor progresses beyond cardia and abdominal segment of esophagus and attaches itself to surrounding organs and tissues. Metastases in regional zones or on wall of the length of the esophagus.

Stage IV. Spreading tumor with remote metastases.

Cancer of the stomach is treated by surgical means: ablation and radical operation if necessary.

Radiation therapy is not applied.

CANCER OF RECTUM

Classification

Stage I. Small, clearly defined, fully mobile tumor or ulcer, localized on small area of mucous and submucous layer of intestine. No regional metastases.

Stage II. (a) Tumor or ulcer occupies up to half the circumference of the intestine without going beyond boundary of intestine. No metastases.

(b) Tumor of same size or smaller, with single mobile regional metastases.

Stage III. (a) Tumor occupies more than half the circumference of intestine, penetrates intestinal wall or adheres to surrounding tissues and organs.

(b) Tumor of any size with multiple metastases in regional lymph nodes.

Stage IV. Large, disintegrating immobile tumor growing into surrounding organs and tissues. Regional or remote metastases.

Applied Methods of Treatment

For stages I, II and III, the rational method of treatment, applied when possible, is radical surgery. Palliative therapeutic measures may be employed for tumors that are not accessible to radical surgical removal: establishment of an artificial anus with partial electrocoagulation of bleeding tumorous masses and, in some cases, radiation therapy.

The choice of the method of surgical therapy depends on the one hand on the stage of spreading of the tumor, and on the other hand on the level of its situation in the organ. Cancer of the upper portion of the rectum and adjacent part of the sigmoid colon may indicate resection with retention of the adducting apparatus if there are no contraindications in the form of extensive infiltration of the cellular tissue and multiple regional metastases. If these contraindications are present, single- or two-stage extirpation may be performed, with the establishment of an artificial anus. With cancer of the rectum, in which the lower border of the cancer is less than 6 cm from the anus, it is best to extirpate the rectum -- if possible, in one operation, otherwise in two stages. A small superficial cancer of the anus and adjacent part of the rectal ampulla may be treated by means of combined therapy after establishment of an artificial anus: electrocoagulation with preliminary or ensuing radiation therapy (proximal-focus roentgentherapy or telegammatherapy).

CANCER OF LARGE INTESTINE

Classification

Stage I. Small, circumscribed tumor localized in thick of mucous and submucous layers of intestinal wall. No regional metastases.

Stage II. (a) Tumor of larger size, but not occupying more than half the circumference of intestinal wall, not growing beyond the boundary of the intestine and not spreading to neighboring organs. No regional metastases.

(b) Tumor of same size or smaller, with single metastases in nearest lymph nodes.

Stage III. (a) Tumor occupies more than half the circumference of intestine, growing into its entire wall or adjacent peritoneum. No metastases.

(b) Tumor of any size, with multiple regional metastases in lymph nodes.

Stage IV. Large tumor spreading to neighboring organs, with multiple regional metastases; or tumor of any size, with remote metastases.

Cancer of large intestine is treated by means of surgical therapy: ablation and radical operation when necessary.

Radiation therapy not applied.

CANCER OF UTERINE CERVIX

Classification

Stage I. Cancer strictly circumscribed by uterine cervix.

Stage II. (a) Cancer of uterine cervix with infiltration of parametrium on one or both sides, not spreading to wall of pelvis (parametrial variant).

(b) Cancer of cervix with infiltration of vagina in the confines of the two upper thirds (vaginal variant).

(c) Cancer of cervix with infiltration of uterine body (uterine variant).

Stage III. (a) Cancer of cervix with infiltration of parametrium on one or both sides, spreading to wall of true pelvis (parametrial variant).

(b) Cancer of cervix spreading to lower third of vagina (vaginal variant).

(c) Cancer of cervix with outlying metastases in wall of true pelvis (regional metastatic variant).

Stage IV. (a) Cancer of cervix spreading to urinary bladder, which is confirmed by cystoscopy or by the presence of a fistula (cystic variant).

(b) Cancer of uterine cervix spreading to rectum (rectal variant).

(c) Cancer of uterine cervix with remote metastases (metastatic variant).

General Instructions on Methods of Treatment of Cancer of Uterine Cervix

Cancer of the uterine cervix is treated by means of (a) concurrent radiation therapy and (b) combined therapy. Either method may be used in the first stage of cancer.

In stage II, concurrent radiation therapy is applied. Combined therapy is permissible for uterine variant or in case radiation therapy is contraindicated.

In stage III, concurrent roentgen-radium therapy is used, except for patients who have a small initial tumor of uterine cervix with outlying metastases on the wall of the true pelvis (regional metastatic variant). With these latter forms, it is permissible to employ combined therapy: preoperative radiation therapy, ensuing operation and postoperative radiation therapy.

In stage IV, roentgentherapy may be applied for palliative purposes.

Combined therapy in stage I is preferable for young patients, and is indicated in:

(a) malformation or disease of external genitalia (atresia, stenosis, atrophy of vagina), preventing the use of radium therapy;

(b) encysted purulent inflammatory processes of the appendices in the nonovulatory period (v kholodnom periode);

(c) tumors of the appendices;

(d) leiomyomas, for which radiation therapy is contraindicated (subserous fibroma on the crus, submucous fibroma, etc.);

(e) pregnancy;

(f) tumors showing little response to radiation therapy.

Concurrent radiation therapy of cancer of uterine cervix is the only rational method of treatment of:

(a) associated severe organic diseases of the heart and blood vessels; (b) general considerable obesity with changes in the cardiovascular system; (c) refusal of patient to submit to operation.

General contraindications to radiation therapy of cancer of uterine cervix include: (1) dissemination of the cancerous process,

cachexia; (2) acute local or general infection; (3) pronounced changes in blood (leukopenia under 3,000) that do not disappear after corresponding treatment; (4) decompensatory diseases of the heart, nephrotic nephrites, severe or acute diseases of liver, severe diabetes. To spare the skin and mucosa of the irradiated areas of the body prior to and during the administering of radiation therapy, hot-water bottles, hot compresses, mustard plasters, irradiation with ultraviolet rays, sollux (sollyuksom) and blue light, and the application of iodine and other irritants should be avoided.

Sequence of Radiotherapy

Concurrent radiation therapy consists of external roentgen- or telegammatherapy and intracavitary application radium therapy.

Cancer of the uterine cervix in the first stage with inclination of the tumor to bleed, and pronounced atrophic changes in the vagina are first treated by means of intracavitary irradiation and then by external radiotherapy.

In all the other cases of cancer in stage I and cancer in stages II and III, therapy may be carried out in the following variants of sequence.

First variant: several treatments of external roentgen- or telegammatherapy at first, with subsequent external radiation alternating with intracavitary applications of radioactive preparations and administered on the days when intracavitary radiation is not given.

Second variant: complete course of external roentgen- or telegammatherapy precedes intracavitary radium therapy. With certain indications (bleeding, leukopenia, etc.), the sequence of therapy may be reversed.

Plan of Treatment of Cancer of Uterine Cervix According to Stages of Disease

I. Concurrent Roentgen- and Radium Therapy

Applied in stages I, II and III.

1. Roentgentherapy is carried out under the following technical conditions: voltage, 180-200 kv; filter, 1 mm Cu and 1 mm Al; focal distance of skin, 40-50-60 cm; compression tube, 8 x 10 or 10 x 15 cm, depending on size of pelvis.

Four to six fields are irradiated: two iliac, two sacral and two lateral. Two fields are irradiated daily. Single dose per field, 250-300 r; total dose per field, up to 2,000-3,000 r, taking into account the number of fields and reaction of skin.

2. Telegammatherapy. The four to six fields indicated above are irradiated. Technical conditions: GUT-Co-400 apparatus; fields are 10 x 15 or 8 x 10 cm in size; focal distance of skin 35-65 cm; single dose, 200-300 r per field. Two fields irradiated daily. Total dose per field 4,000-4,500 r.

3. Intravaginal Radium Therapy. The preparations used have an activity of 10-12 mg. The filters for radium and radium-mesothorium are of platinum (1 mm) and gold (1 mm); for radioactive cobalt (Co^{60}), only primary, steel. Two, three, or four preparations in a stent mold 1 cm in thickness or in a casing of gauze and cotton 1.5-2 cm thick in a rubber shield are applied to the uterine cervix or in the fornix of the vagina; special colpostats may also be used. The vagina is then packed. The period of radiation is 24 hours, with intervals of 3-4 days between treatments. Simultaneous introduction of applicators to the uterine cervix and vaginal fornix is permissible.

4. Intrauterine Radium Therapy. Two, three, or four preparations with activity of 10-12 mg are introduced into the uterus, the filters for radium and radium-mesothorium are of platinum (1-2 mm), and for Co^{60} -- steel.

The preparations are placed in a brass tube or in a rubber catheter and, after dilation of the cervical canal with Hegar's dilators No. 5-7, they are introduced into the fundus of the uterus. The period of irradiation is 24 or 48 hours, with intervals of 3-5 days between treatments.

In intracavitary therapy, the total dose at a distance of 2 cm from the axis of the cervix and 2 cm above the fornix of the vagina at the site of crossing of the uterine artery and the ureter (point A) fluctuates between 6,000-8,000 r; at the pelvic wall (point B) -- from 1,200-1,500 r. In milligram-hours this dose amounts to 7,000 mg ech (electron hour?) and is divided equally between the vagina and uterine cavity or with a slightly larger intracavitary dose.

If indicated, vaginal radiation therapy may be substituted by proximal-focus roentgentherapy or transvaginal roentgentherapy with hard rays.

5. Proximal-focus Intravaginal Roentgentherapy. Carried out with corresponding apparatus under the following conditions: voltage, 90 kv; filter, 0.5 mm Cu; total dose for cervix, 5,000-9,000 r.

6. Transvaginal Roentgentherapy. Technical conditions: voltage, 200 kv; filter, 0.5 mm Cu; focal distance of skin, 45-50 cm. A special tube with a narrow inner passageway and a set of brass specula of different sizes are used, through which the uterine cervix or fornix of the vagina are irradiated. The single dose is 500-700 r; strength of dose, 50-57 r/m; total dose on cervix and fornix of vagina, 3,000-5,000 r.

Concurrent radiotherapy is applied in one course and is not repeated if there are no special indications for repetition.

Therapy in stage IV: in some patients, external roentgen- or telegammatherapy may be used for palliative purposes by the method described above.

II. Combined Therapy of Cancer of Uterine Cervix

The first step is extensive extirpation of the uterus with appendices and regional lymph nodes; removal of the upper third of the vagina with the surrounding parametrial and paravesical cellular tissue, and the cellular tissue along the iliac and hypogastric arteries and the obturator nerve.

The second step: roentgentherapy, which should be started as soon as the patient's general condition permits. The method of irradiation is the same as in the initial treatment of cancer of the uterine cervix.

Combined therapy may be started with radiation therapy.

CANCER OF UTERINE BODY

Classification

Stage I. Tumor of uterine body circumscribed by endometrium.

Stage II. (a) Cancer infiltrating into myometrium.

(b) Cancer infiltrating into parametrium on one or both sides, not progressing to wall of true pelvis.

(c) Cancer spreading to uterine cervix.

Stage III. (a) Cancer infiltrating parametrium on one or both sides and spreading to wall of pelvis.

(b) Cancer with metastases in regional lymph nodes, appendices and vagina.

(c) Cancer progressing to peritoneum, but without involvement of adjacent organs.

Stage IV. (a) Cancer with intergrowth on peritoneum spreading to urinary bladder or rectum or to other parts of the intestine.

(b) Cancer of uterine body with remote metastases.

Applied Methods of Treatment

1. Combined method: operation followed by radiotherapy.

2. Concurrent roentgen-radium therapy.

Combined therapy is indicated in stage I: simple extirpation of uterus with appendices followed by radiotherapy, which is applied by the same method as in cancer of uterine cervix.

In the second stage of cancer of the uterine body, if there is no involvement of the parametrium, the treatment is the same as in stage I.

Concurrent roentgen-radium therapy is the only treatment recommended for the parametrial variant.

In the third stage of cancer of the uterine body, concurrent roentgen-radium therapy is indicated; combined therapy is indicated only with isolated involvement of the appendices.

Note: if metastases in the lymph nodes of the pelvis are discovered during surgical operation, extensive extirpation of the uterus is indicated.

Method of concurrent roentgen-radium therapy:

1. external radiation as in cancer of uterine cervix.

2. intracavitary irradiation: intrauterine radium therapy; intravaginal radium therapy may be added. Total dose same as for cancer of uterine cervix.

OVARIAN CANCER

Classification

Stage I. Tumor in one ovary; no metastases.

Stage II. Tumor grown beyond first ovary, involving other ovary, uterus and one or both tubes.

Stage III. Tumor spread to the parietal peritoneum in the pelvis. Metastases in regional lymph nodes, in omentum.

Stage IV. Ovarian tumor infiltrates adjacent organs: urinary bladder, rectum and loops of intestines, with dissemination along peritoneum beyond limits of true pelvis, or with metastases in remote lymph nodes and viscera. Ascites.

Applied Methods of Treatment

1. Combined: surgical operation and radiotherapy.

2. Radiation: roentgentherapy, telegammatherapy.

Combined therapy is used in the first and second stages of ovarian cancer. In the third stage, exploratory laparotomy with subsequent radiotherapy are indicated. In stage IV, radiotherapy may sometimes be used.

Hormone therapy is given with the indicated treatment in all stages.

Plan of Treatment of Ovarian Cancer

Stage I

1. Surgical therapy: appendices removed simultaneously with extirpation or supravaginal removal of uterus; roentgen- or telegammatherapy is given 1 1/2-2 weeks after operation.

2. Postoperative radiotherapy. (a) Roentgentherapy: two iliac fields, two sacral fields and the region of the paraaortal lymph nodes are irradiated from the front and back. Technical conditions: voltage, 180-200 kv; filter, 0.5-1 mm Cu and 1 mm Al; focal distance of skin, 40-50 cm; size of fields 10 x 15 cm; single dose, 250-300 r; total dose per field, 2,000 r.

(b) Telegammatherapy delivered with GUT-Co-400 apparatus. The same fields are irradiated as in roentgentherapy. Focal distance of skin, 35-60 cm. Size of fields, 10 x 15 cm. Total dose per field, up to 3,000 r.

Stage II

Combined therapy is given as in first stage of ovarian cancer.

Stage III

1. Surgical therapy may be carried out as palliative treatment for the purpose of creating more favorable conditions for subsequent radiotherapy. Operation frequently limited to exploratory laparotomy.

2. Postoperative radiotherapy includes roentgen- or telegammatherapy of entire abdominal cavity from front and back. The abdominal wall is divided into four equal sections. Four fields in back, corresponding to these, are irradiated. The conditions are the same as in the first stage of ovarian cancer, except that one field is irradiated daily. The total dose delivered per field in roentgen- and telegammatherapy is 2,000 r.

If ascitic fluid accumulates during radiotherapy, the fluid is removed by means of abdominal paracentesis.

Stage IV

If no general contraindications exist, palliative radiotherapy, as in stage III, may be given to some patients.

Synthetic sex hormones are administered simultaneously with radiotherapy in all stages of ovarian cancer: intramuscular injections of testosterone-propionate, 25-50 mg daily or 50-100 mg every other day; total dose, 5-6 g. The injections may be substituted by internal administration of methyltestosterone, 10 tablets daily (under the tongue); total dose, 5-6 g.

CANCER OF VULVA

Classification

Stage I. Tumor or ulcer up to 2 cm in diameter, located in surface layers of skin or mucous membrane, without metastases.

Stage II. Tumor with infiltration of adjacent soft tissues, or large superficial tumors with single mobile metastases in inguinal region.

Stage III. Cancer infiltrates deeply into adjacent tissue, causing complete immobility of affected region. Unilateral metastases with limited mobility or bilateral mobile metastases in inguinal region.

Stage IV. Cancer spreading to neighboring organs (vagina, urethra, rectum), or metastasized in remote organs.

Therapy of cancer of vulva includes:

(a) treatment of initial tumor;

(b) treatment of regional metastases.

Treatment of Initial Tumor

In stage I, both surgical and radiotherapy may be indicated on an equal basis. The latter is preferable from the functional standpoint.

In stages II and III, combined therapy is preferred: radiation and surgical (radiotherapy is also permissible).

In stage IV, only palliative treatment is given.

Radiation Method

The radiation method consists of deep or proximal-focus roentgentherapy and radium therapy (telegammatherapy, acupressure or contact therapy). Contact therapy is given when neither a telegamma-ray apparatus nor radium-bearing needles are available.

Surgical Method

Surgical therapy should consist of radical vulvectomy, preferably by the electrosurgical method, except in the earliest cases in stage I, in which the ulcer does not exceed 1 cm. In these cases, the tumor and the healthy tissues to 3 cm from the tumor are removed by electrosurgery.

Stage I

Roentgentherapy. (1) The initial tumor and the zone of unaltered tissue surrounding it -- at least 3 cm in width -- are irradiated under the following conditions: voltage, 160-180 kv; filter, 0.5 mm Cu and 1 mm Al; focal distance of skin, 30 cm; single dose, 200 r; total dose, up to 2,000 r.

(2) Proximal-focus roentgentherapy under the following conditions: voltage, 50-90 kv; focal distance of skin, 3-5 cm; filter, 0.2 mm Cu; single dose, 400-600 r; total dose, 6,000-8,000 r (the smaller the area of irradiation the larger the dose).

Radium therapy. (1) Proximal-focus telegammatherapy. When a telegamma-ray apparatus is used, the daily single dose is 200-300 r; total dose at least 5,000 gamma-r.

(2) Interstitial method. The content of radioactive substance in the needles is 0.5-1.5 mm; filter equivalent to 0.5 mm Pt. The needles are introduced 1 cm beyond the edge of the ulcer in chain-like arrangement, and 1-2 needles are introduced under the base of the ulcer. Duration of treatment, 6-10 days; total dose, 5,000-6,000 gamma-r.

(3) Contact method. The content of radioactive material in the preparation is 1 to 5 mg; filter equivalent to 0.5 mm Pt. The radioactive preparations are placed on an applicator at a distance of 1-2 cm from the ulcer, in a chain along the perimeter of the ulcer, receding from the latter by 0.75-1 cm. Total dose, 5,000-6,000 r. It is necessary to watch closely for skin reaction and, if it is unusually strong, discontinue irradiation, not delivering the dose indicated above.

Stage II

The same kinds of radiation are used as in the first stage. It is preferable to give telegammatherapy and proximal-focus roentgentherapy concurrently with the introduction of radium-bearing needles in the remnants of the tumor after the reactional symptoms have subsided.

Doses of telegammatherapy: single dose, 200-300 r; total dose, 2,000-3,000 r; proximal-focus roentgentherapy: total dose, 4,900-5,000 r; in interstitial radiotherapy -- 2,000-3,000 r.

If there is doubt that concurrent radiotherapy of the initial tumor has been effective, vulvectomy by means of electrosurgery is indicated.

Stage III

Treatment should always begin with radiation in the form of roentgentherapy, teleradium therapy or contact therapy with radium, preferably administered concurrently. Interstitial radium therapy should be given as the final step in radiotherapy of the remnants of the tumor in those cases where a pronounced effect has been obtained from external irradiation.

The technical conditions in roentgen- and radium therapy will differ from those described above only in the number or size of the fields, depending on the size of the tumor.

After the sharp reactional symptoms following radiotherapy have subsided, in cases where treatment has not been fully effective, but with the obtaining of sufficient mobility of the initial focus, it is necessary to undertake radical electrosurgical excision of the entire vulva.

Surgical therapy is not indicated if no effect is produced by radiotherapy.

Treatment of Regional Metastases

Stage I. Following treatment, the patient should be kept under systematic medical observation for the condition of the regional lymph nodes.

Stage II. After the initial tumor has been successfully treated, the regional lymph nodes are surgically removed (Duchenne's method of operation).

Stage III. After successful treatment of the initial tumor, with the presence of mobile inguinal lymph nodes, the nodes are excised as in stage II.

With limited mobility of the lymph nodes, they may be removed only after preliminary radiotherapy (telegamma- or roentgentherapy).

CANCER OF VAGINA

Classification

Stage I. Circumscribed tumor or ulcer up to 2 cm in diameter in the thickness of the mucous and submucous layers, without metastases.

Stage II. Large tumor with infiltration into paravaginal cellular tissue. Single mobile metastases in inguinal lymph nodes.

Stage III. Tumor spread over considerable area of vagina (more than 2/3), with infiltration into paravaginal cellular tissue and wall of true pelvis. Multiple regional metastases (inguinal, iliac).

Stage IV. Tumor progressed to urinary bladder and rectum. Tumor smaller in size, but with remote metastases.

Applied Methods of Treatment

Cancer of the vagina in stages I, II and III is treated by means of roentgen- or telegammatherapy given concurrently with intracavitary introduction of radioactive preparations. In stage IV, sometimes only external radiotherapy may be used.

Roentgentherapy or Telegammatherapy

Radiation conditions are the same as in cancer of the uterine cervix. The number of fields -- up to seven: two inguinal, two iliac, two sacral and one perineal. Total dose per field in roentgentherapy -- up to 2,000 r; in telegammatherapy -- 3,500-4,000 r per field.

Intracavitary Radium Therapy

In the first, second and third stages of cancer, radioactive preparations, containing 2-3 mg of radioactive material, placed on a plate 1-2 cm in thickness made of wax with paraffin, and arranged so that they border the entire perimeter of the tumor, forming a continuous, uninterrupted radiating line. The preparations are covered with a lead plate to protect the healthy tissues of the vagina.

Prior to introduction into the vagina, the applicator is poured with a thin layer of wax, covered with a rubber preservative and vaseline is applied to it. The period of irradiation is 24 hours at intervals of 3-4 days. The total dose on the tumor is 6,000-6,500 r, depending on the size of the cancer.

If the cancer is widespread in the vagina, a sten cone is made, corresponding in size to the vaginal canal. Preparations of radium, each containing 5 mg, are placed end to end in the center of the cone: 20-25 mg altogether, with filter equivalent to 2 mm Pt. The period of irradiation is 24 hours at intervals of 5-6 days, with 7-8 applications. Maximum total dose on vaginal wall, 4,500 r.

Intracavitary radium therapy may also be applied by the method used in the treatment of cancer of uterine cervix.

This therapy may be substituted by proximal-focus roentgentherapy of the vagina. Radiation conditions: voltage, 90 kv; filter, 0.5 mm Cu; slanting tube; single dose on tumor, 500-600 r; total dose, 6,000-7,000 r.

CANCER OF PENIS

Classification

Stage I. Tumor or ulcer 2 cm in diameter, circumscribed by skin of glans penis or the inner leaves to the prepuce. No metastases.

Stage II. (a) Tumor or ulcer occupying large part of surface of glans penis or prepuce, with scattered growth in the corpora cavernosa.

(b) Tumor of same size or smaller, with unilateral, single, fully mobile inguinal metastases.

Stage III. (a) Tumor occupying not more than half the penis, degenerating the corpora cavernosa and growing into the urethra.

(b) Tumor of same size or smaller, with bilateral multiple metastases in the inguinal and nearest iliac lymph nodes.

Stage IV. (a) Tumor occupying large part of the organ. Immobile regional metastases.

(b) Tumor of same size or smaller, but with remote metastases.

Applied Methods of Treatment

1. Surgical therapy: with knife and electrosurgery.

2. Radiotherapy: roentgen- and radium therapy.

3. Combined therapy: surgical operation with radiotherapy.

The method of treatment should be selected according to the stage of disease and location of tumor.

In stage I, it is best to use radiotherapy, particularly proximal-focus roentgentherapy.

In stage II, combined therapy is recommended: radiotherapy of initial tumor, followed by partial amputation of penis and surgical operation of lymph sinuses.

In stage III, preoperative irradiation of the initial tumor is followed by radical amputation of penis and bilateral dilatation of lymph sinuses in the inguinal and iliac regions.

In stage IV, neither radical surgery nor radical radiotherapy are used. Symptomatic treatment is indicated. Disintegration of

bleeding tumors indicates palliative amputation. Cancer of the penis is often accompanied by more or less pronounced phymatosis, or it develops in the process of radiotherapy. Therefore, it is obligatory that radiotherapy of the initial tumor should be preceded by dissection or excision of the prepuce for complete exposure of the glans.

Plan of Treatment of Cancer of Penis According to Stage of Disease

Stage I

First step

Treatment of initial focus of tumor. Radiotherapy.

Proximal-focus roentgentherapy under following conditions: voltage, 50-60 kv; filter, 0.5 mm Al and 0.2 mm Cu; focal distance of skin, 5 cm; radiation applied daily; single dose, 300-500 r; total dose, 4,000-6,000 r.

If an apparatus for proximal-focus roentgentherapy is not available, it is best to use surgical therapy in the form of partial amputation of the penis.

Radium therapy. Definite preference is given to (a) interstitial radium therapy: needles containing 0.5-1 mg radioactive material are introduced into the thickness of the marginal fold along the perimeter of the tumor and into the center of the tumor in rows, arranged 1-1.5 cm apart; total dose, 5,000-6,000 r; strength of dose, 30-80 r/hr; (b) radium therapy with the help of a wax mold: preparations containing 2-5 mg radioactive substance; focal distance of skin, 1-2 cm; daily irradiation for 6-8 hours; strength of dose, 40-60 r/hr; total dose, 6,000-7,000 r.

Surgical therapy. (a) If the tumor is located only on the inner leaf or on the loose rim of the prepuce, treatment consists of complete excision of the prepuce.

(b) If the tumor is located on the glans penis or has spread to the glans, partial amputation (2.5-3 cm beyond borders of tumor) is indicated.

Second step

Surgical excision of inguinal lymph sinuses for the purpose of preventing metastasis. Performed only when systematic observation of the condition of the patient's lymphatic apparatus cannot be ensured.

Stage II

First step

Treatment of initial focus of tumor.

Radiotherapy. Proximal-focus roentgentherapy and radium therapy conducted as in stage I. Besides this, telegammatherapy with a GUT-20 apparatus may be used. Radiation is applied daily; single dose, 200-250 r; total dose, 4,000-6,000 r.

Surgical therapy: Preferably electrosurgical partial amputation of penis.

Combined therapy: preoperative radiotherapy of initial tumor, as described above, followed by partial amputation of penis after reactive symptoms have subsided (10-15 days after termination of preoperative radiation).

In some cases of cancer of the penis in stage II, treatment may consist of either surgical or radiotherapy alone.

Second step

With any method of treatment of the initial tumor -- radical surgical operation of lymph sinuses in inguinal regions.

Stage III

First step

Treatment of initial tumor.

(1) Combined therapy, as in stage II, indicated.

(2) If it is impossible to conduct preoperative radiotherapy of the initial tumor, total amputation -- preferably by electrosurgical means -- of the penis is indicated.

Second step

(1) Radical surgical operation of lymph sinuses in inguinal and iliac regions.

(2) Radical surgical operation of lymph sinuses may be preceded by preoperative telegammatherapy with special apparatus: daily radiation; single dose, 200-300 r; total dose, 3,000-5,000 r.

CANCER OF URINARY BLADDER

Classification

Stage I. Small, circumscribed tumor. No infiltration into muscle layer of bladder.

Stage II. Spreading tumor with infiltration into muscle layer.

Stage III. Tumor occupies half of bladder, penetrates it and attaches itself to adjacent organs. Orifices of ureters remain open. Metastases in lymph nodes.

Stage IV. Tumor spreads to ureteral orifices, growing into adjacent tissues and organs. Extensive local and remote metastases. Cachexia.

Applied Methods of Treatment

(1) Surgical: transurethral, intracystic operation; electrocoagulation of tumor with high-frequency current; high section of urinary bladder followed by electrocoagulation of tumor; resection of urinary bladder with or without ureteroneocystostomy; extirpation of bladder with preliminary transplantation of ureters in intestine.

(2) Radiotherapy: (a) roentgentherapy; (b) radium therapy; (c) concurrent roentgen- and radium therapy.

(3) Surgical therapy concurrently with radiotherapy. Plan of treatment according to stage of disease.

Stage I

Electrocoagulation of tumor (transurethral or endovesical) followed by radio- or roentgentherapy.

Radium therapy: interstitial or telegammatherapy.

(a) Telegammatherapy: irradiation with GUT-Co-400 apparatus with four fields -- two suprapubic, 6 x 8 cm, and two sacrogluteal, 8 x 10 cm; focal distance of skin, 35 cm.

Two fields irradiated daily in doses of 200-250 r. If the cervix or fundus of the bladder are diseased, it is expedient to add a fifth field -- perineal. Total dose per field, 3,000-3,500 r. Focal dose, 6,000 r.

(b) Interstitial therapy: needles containing 0.5-1 mg radioactive substance are introduced directly into the matrix of the tumor after its removal from the bladder. Total dose, 5,000-5,500 r; strength of dose, 30-40 r/hr. Period of irradiation approximately 4-5 days.

Roentgentherapy is conducted with two fields 6 x 8 cm in size (median suprapubic and sacrococcygeal); daily dose, 200-300 r per field; total dose, 1,500-2,000 r per field. Conditions: voltage, 180-200 kv; filter, 0.8-1 mm Cu and 1 mm Al; focal distance of skin, 30-40 cm.

Stage II

Combined therapy. If the tumor is located outside the cervix and fundus of the bladder, resection of the bladder is performed. Tumor in the region of the cervix or fundus indicates electrocoagulation in the opened bladder, with subsequent introduction of radioactive needles into matrix of tumor. Total dose, 5,000 r.

With cancer in the area of the cervix and fundus of the bladder, radical surgery may be performed -- extirpation of bladder with preliminary transplantation of ureters in intestine.

Stage III

Radiotherapy. (1) Telegammatherapy: method same as in stages I and II, with obligatory addition of fifth field (perineal). Dose per field, 400 r; focal dose, 7,000-8,000 r.

(2) Roentgentherapy: conducted with five fields -- two suprapubic and two sacrogluteal, 8 x 10 cm in size, and one perineal, 8 x 10 cm. Two fields irradiated daily. Single dose, 250 r; total dose per field, 2,500 r.

Surgical method: in stage III, radical operation is also possible in certain cases -- extirpation of bladder with ureteral transplantation, combined with radiotherapy -- as well as the method used in stage II.

Stage IV

Radiotherapy not indicated. Symptomatic treatment may be given, or palliative surgical therapy if indicated: with urinary retention -- creation of suprapubic fistula; with compression of ureters -- pyelostomy.

CANCER OF TESTIS

Classification

Stage I. Small, circumscribed tumor, not growing into tunica and not destroying the form of the testis. No metastases.

Stage II. Tumor progresses beyond tunica and destroys form of testis. Occasional exudation from tunica. Single metastases in nearest pelvic lymph nodes.

Stage III. Testis turns into large, tuberous tumor attached to skin, ulcerated. Blood-stained exudate in tunicae. Large masses of metastatic lymph nodes in inguinal regions, sometimes larger in size than diseased testis.

Stage IV. Large, disintegrating tumor of testis. Extensive metastases in inguinal, retroperitoneal and mediastinal lymph nodes. Tumor of smaller size with remote metastases.

Applied Methods of Treatment

1. Tumor of testis indicates obligatory retrograde pyelography and intravenous urography to establish retroperitoneal metastases.

2. Extensive surgical therapy concurrently with radiotherapy.

Stage I

When there is only a tumor of the testis, the treatment consists of surgical removal of the affected organ in combination with postoperative roentgentherapy of the principal paths of metastatic development and the operative area. Technical conditions: voltage, 180-200 kv; filter, 0.5 mm Cu and 1 mm Al; focal distance of skin, 40 cm. Single dose, 200 r; total dose per field, 1,000-1,500 r.

The following areas are irradiated: (a) abdomen, three fields -- two inguinal and one median (para-aortal); (b) sacral region, two fields; (c) sometimes the mediastinum, from front and back. One field irradiated daily. Gammatherapy may be used instead of roentgentherapy, with irradiation of the same fields. Single dose, 200 r; total dose per field, 2,000-2,500 r.

Stage II

Initial tumor with metastases in abdominal, mediastinal and supraclavicular lymph nodes. Combined therapy: (a) surgical removal of testis; (b) postoperative roentgentherapy or telegammatherapy. Fields and technical conditions as in stage I of disease.

Stage III

Combined therapy conducted in four steps.

(1) Preoperative roentgentherapy -- conditions as in stage I. The affected testis and metastatic areas are irradiated from two fields; total dose per field, 1,000-1,600 r.

(2) Surgical operation two to three weeks later.

(3) Postoperative roentgentherapy under same conditions as in stage I.

Tumors that develop in ectopic testes, in stages I and II, indicate the treatment described above; in stage III, with development of cancer inside the organ, radiotherapy is the only possible treatment.

Stage IV

If there are no remote metastases, roentgentherapy is applied with a total dose of 2,000-2,500 r per field, or telegammatherapy with total dose of 3,000-3,500 r per field.

Radiotherapy is repeated after two to three months, if the patient's general condition and skin permit.

CANCER OF PROSTATE

Classification

Stage I. Single tumerous nodes in prostate, not infiltrating into capsule. No established metastases.

Stage II. Tumor occupies considerable portion of prostate, but does not involve surrounding tissue. Single metastases in lymph nodes.

Stage III. Tumor occupies entire prostate, growing into capsule. Pronounced metastases in regional lymph nodes.

Stage IV. Tumor penetrates surrounding tissue and organs, with multiple metastases. Cachexia.

All forms of radical therapy and every operation involving enucleation of the parenchyma of the testes or orchidectomy should be preceded by biopsy and cytological examination of the prostatic fluid to confirm malignancy.

Applied Methods of Treatment

Stage I

Radical perineal prostatectomy or removal of prostate by Felker's [?] method: removal of prostatic capsule, prostatic portion of urethra and seminal vesicles with simultaneous orchidectomy or enucleation of testicular parenchyma and subsequent hormone therapy (diethylstilbestrol or synestrol).

Diethylstilbestrol is administered intramuscularly in dose of 25-30 mg daily for a period of 30-50 days. Synestrol is given intramuscularly -- 30-40 mg of a 2% solution for a period of 30-50 days.

The course is repeated after an interval of not more than 10 days. Dosage varies individually, depending on status of tumor (recurrent growth or its absence, intensity of growth or degree of its reverse development).

Therapy should include administration of cortisone.

Stage II

(a) Therapy as in stage I.

(b) If it is impossible to remove the entire tumor, radioactive isotopes may be used for therapeutic purposes: colloidal solutions of radioactive gold (Au^{198}) and radioactive phosphorus (P^{32}) by means of infiltration into the tissues of the gland, periprostatic and perivesical cellular tissue in the opened urinary bladder combined with infiltration into the gland from the perineal aspect, controlled by insertion of finger in rectum.

Dosage of preparation depends on size of prostate and degree of malignant involvement of the gland. Maximal doses should not exceed 150-200 m/curie.

Repeated introductions of radioactive preparations from the perineal aspect are possible after two to three months, depending on the condition of the tissues, the patient's general condition and blood picture.

(c) Roentgen-ray irradiation of the suprarenal glands with obligatory administration of cortisone.

Stage III

(a) Surgical: (1) palliative surgery for elimination of symptoms connected with development of cancer in the prostate: with retention of urine -- cystostomy; with azotemia and hydronephrosis resulting from compression of the pelvic portion of the ureters with tumorous infiltrates -- nephrostomy; (2) enucleation of parenchyma of testes, or orchidectomy.

(b) Following hormone therapy with the preparations and plan indicated above, with intervals of 10 days between courses of treatment. With favorable results, diethylstilbestrol may be administered internally in dosage of 20-30 mg.

(c) Therapy with colloidal solutions of radioactive gold and phosphorus by the method described above.

(d) Roentgen-ray irradiation of suprarenal glands with obligatory administration of cortisone.

Stage IV

Palliative surgical therapy and hormone therapy as in stage III.

INSTRUCTIONS
on Preparation of Plastic Mass and Molds for Radium Therapy

Composition of Plastic Mass

1. 100 parts by weight of natural wax.

2. 100 parts by weight of paraffin (melting point approximately 60°).

3. 10-15 parts by weight of sawdust (any variety of wood).

The sawdust should be thoroughly dried over a low flame so that it does not darken in color during the drying process, then sifted through a very fine -- preferably silk or hair -- strainer.

Preparation of Plastic Mass

1. A pan with weighed and chopped wax and paraffin is placed over a flame.

2. As soon as a sufficient amount of melted wax and paraffin has accumulated on the bottom of the pan to prevent scorching of the sawdust, a weighed amount of sawdust is added, and the mixture is boiled for at least 15 minutes (for purposes of sterilization and saturation of the sawdust with wax).

3. The liquid mass is stirred so that the sawdust will be evenly distributed, and then poured into previously prepared, thoroughly greased (with vaseline or any kind of oil) molds resembling photographic cells. The sawdust cannot be stirred in the cell because this causes the plate to stick to the bottom.

4. Later, while the solidified plate is still warm to the touch, it is loosened from the edges of the cell with a knife.

5. After the plate has cooled completely, the cell is turned upside down and tapped so that the plate will fall out instantly, without sagging. If the plate sticks, the bottom of the cell should be scalded with a wide, rapid spray of boiling water; the plate then drops out easily.

Preparation of Plastic Mass for Mold

The plastic mass is heated by immersion in water (from room temperature to 40-45°). The temperature of the water should be increased

gradually by the addition of hot water, but not over a flame. If the plastic mass is heated rapidly and unevenly in the water, it becomes slippery and unsuitable for use.

Preparation of Mold (Cast) From Plastic Mass

1. Before making the cast, it is necessary to think out the correlation of its working part, to which the preparations will be fixed, and the supporting parts, which should not be exceedingly large. On the face, one or both eyes should remain open, if possible, Here, the best support (the less with which is not recommended to make a mold with the smallest of its working part) is given by the plate that covers the forehead (from the scalp outward, to the outer corners of the eyes), the dorsum nasi and zygomatic arches (down to the rima oris).

2. Before acquiring sufficient experience in the preparation of an impression, it is best to first make a paper pattern of the future mold.

3. Having laid the paper pattern on the plate which has been heated in water, you may cut out the form of the future impression under water without cooling the plate. The cut-out plate is placed on the skin and the required impression is made by compression with the entire palm or with the fingers closed together.

4. The prepared impression is carefully removed -- without peeling off the plate but making it to fall on the placed-under hand by the strength of its own weight -- and cooled in cold running water.

5. After the mold has been completely cooled, on the edges of its supporting parts are pierced 6-8 holes for ties (from strips of gauze), which must provide even contact of the mold against the skin.

6. For exactness of placement of the radioactive preparations (in immediate proximity to the skin or at a required distance), it is recommended to cut a control opening in the cast, corresponding exactly to the outline of the tumor, but 1 mm smaller in size. Then the placing of the preparations along the periphery of the tumor will be easy to do by sight. If the size of the tumor requires additional tumors in its middle portion -- for the supplementary rows of preparations is fastened a required number of narrow strips of plastic mass, crossing the control opening in the necessary direction. Due to the control opening for the extent of the entire period of treatment, control is provided for the correct fixation of the preparations.

7. Simultaneously with the cutting out of the control opening in the cast is fastened the required shield, e.g., for protection of the eyes. Lead protective plates are embedded in the thickness of the not yet cooled cast, perpendicularly to its surface but not in contact with the skin.

8. After complete cooling of the cast, grooves are made with a sterile instrument around the control opening and, if necessary, in the narrow strips that intersect it. Into these grooves are placed the preparations, pouring melted wax over them.

9. Before placing the impression, its inner surface is covered with a layer of gauze, taking great care that it does not wrinkle. A hole is cut in the gauze opposite the control opening. The gauze is changed daily.

10. At first, the cast is fastened with ties, and then bandaged and kept on for the required period of time (often nearly 24 hours).

11. For each patient, for each localization of the tumor, a special cast must be made.

12. On completion of the treatment, the working part of the cast that is soiled with a purulent discharge is cut out and discarded, while the supportive parts of the cast are crushed again, boiled and remolded into a plate of the required thickness for repeated use.

13. If the pliability of the mass is lost after the 10-15th application, it must be melted, put through a strainer in order to remove all the solid particles, and then add a corresponding amount of fresh sawdust according to weight and cook the plastic mass by the usual method.

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of Specialized Medicine

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